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**NON HAZARDOUS CONCURRENCE  
REQUEST FOR  
WOOD CEILING MATERIAL  
FROM THE  
GENERAL ELECTRIC COMPANY  
STANFORD AVENUE FACILITY IN  
LOS ANGELES, CALIFORNIA**

**Volume I**

**Prepared for:**

**General Electric Company  
San Francisco, California**

**Prepared by:**



**OHM Corporation**

**OHM Remediation Services Corp.  
Walnut Creek, California**

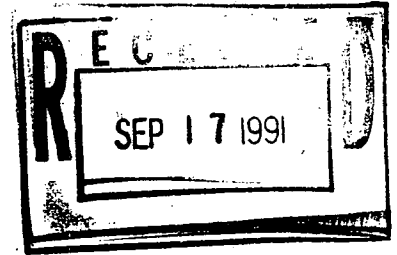
**September 1991**

**10334**



OHM Corporation

September 11, 1991



Ron Pilorin  
CAL EPA  
Waste Evaluation Unit  
P.O. Box 806  
Sacramento, CA 95812-0806

Subject: Transmittal of Non Hazardous Concurrence Request for Wood Ceiling Material from The General Electric Company Stanford Avenue Facility in Los Angeles, California

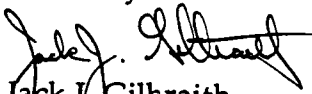
Dear Mr. Pilorin:

On behalf of General Electric Company please find enclosed one copy of each of the following documents:

- 1) Volume I - Non Hazardous Concurrence Request for Wood Ceiling Material from The General Electric Company Stanford Avenue Facility in Los Angeles, California
- 2) Volume II - Non Hazardous Concurrence Request for Wood Ceiling Material from The General Electric Company Stanford Avenue Facility in Los Angeles, California
- 3) Chemwest Quality Assurance Program Plan.

It is our understanding that the current fee for CAL EPA review of non hazardous concurrence documentation is \$8,317. If you have any questions please call me at (510) 256-6110 Ext. 405.

Sincerely:

  
Jack J. Gilbraith  
Project Manager

cc: Irene Boczek w/Vol. 1  
Jean Rice w/Vol. 1  
Bong Kown

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## SECTION 1

### INTRODUCTION

This report presents General Electric Company's (GE) conclusion that charred wood ceiling materials from the East Building of the former GE facility located at 6900 Stanford Avenue in Los Angeles are nonhazardous based on the California hazardous waste characterization criteria set forth in California Administrative Code (CAC) Title 22, Article 11. Pursuant to CAC Title 22, Article 2, Section 66305 (c), GE seeks California Department of Health Services (DHS) concurrence with the nonhazardous determination. OHM Remediation Services, Inc. (OHM), conducted the analysis on behalf of GE.

GE currently plans to demolish and dispose of surface structures at the Stanford Avenue facility. GE is in the process of characterizing site materials for proper disposal. Prior investigation conducted at the former GE facility has indicated the presence of polychlorinated biphenyls (PCBs) in certain building materials. A portion of the ceiling in the East Building is charred and several samples collected from this area indicated PCBs at concentrations ranging from 17 to 19 milligrams-per-kilogram (mg/kg). Because of the potential for polychlorinated dibenzodioxins and polychlorinated dibenzofurans (PCDDs/PCDFs) to be associated with fires involving PCBs, samples were analyzed for these compounds. This report provides the results of this sampling and analytical effort.

A brief description of the the GE Stanford Avenue facility is provided in Section 1.1. Section 1.2 presents a summary of past investigations of the charred ceiling of the East Building. Sections 2 presents the procedures for sampling and analysis as well as analytical results. Section 3 contains the characterization of the ceiling material. Waste characterization according to the CAC Title 22, Article 11 criteria are discussed in Sections 3.1 through 3.5. The waste classification determined for the waste by GE is provided in Section 3.6. Section 4 presents GE's requests for DHS concurrence with the classification.

#### 1.1 Facility Description

The facility is located at 6900 Stanford Avenue, Los Angeles California (Figure 1-1). The property is in a light industrial and commercial area and is bordered to the north by Sinclair Paint Company, to the east by a Santa Fe Rail spur, to

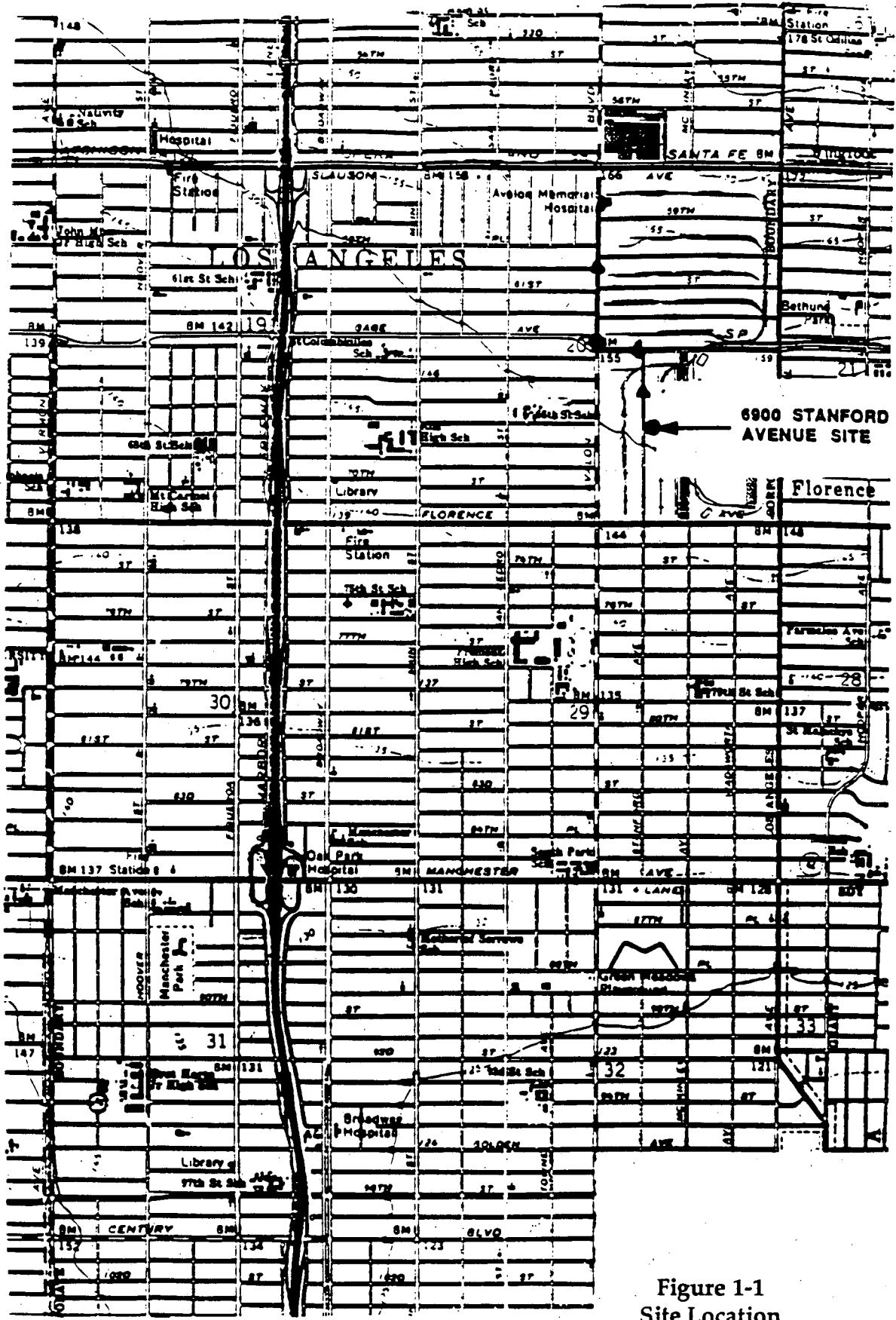


Figure 1-1  
Site Location

|                                     |             |                |                           |                               |
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the south by Custom Lithograph, and to the west by Stanford Avenue. The facility occupies approximately 1.4 acres, most of which is covered by two main buildings (Figure 1-2). The dimensions of the West Building are approximately 300 feet by 100 feet. The building is constructed of brick walls and has a wood ceiling. The East Building is of similar construction and is approximately 300 feet by 50 feet in size. Other small structures on the property consist of a guard house, an operator room that connects the two main buildings, a transformer yard, a storage room, a water tower, and a switch room.

## 1.2 Summary of Prior Investigations

Between July 1984 and March of 1985, Med-Tox Associates Corporation (Med-Tox) was directed by Endura Metals (then occupant of the facility) to collect environmental samples. Med-Tox collected a scrape sample from the charred area of the East Building ceiling. The sample was analyzed for PCDDs and PCDFs by Brehm Laboratory (Wright State University). Analytical results showed a 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) concentration of 0.498 micrograms per kilogram (ug/kg) and a 2,3,7,8-tetrachlorodibenzo-p-furan (2,3,7,8-TCDF) concentration of 24.3 ug/kg (Med-Tox, 1985). Laboratory results are included in Appendix A-1. No quality assurance data or chain-of-custody documents are available for the Med-Tox data.

On May 15, 1985, seventeen samples were collected from various media (ie., cardboard, wood, dust and residue, soil, and surface wipes) present at the site for PCB, PCDD and PCDF analyses. The samples were split and equally divided between Med-Tox, Bechtel National, Inc. (Bechtel) and the State of California Department of Health Services (DHS). The Med-Tox samples were analyzed by Brehm Laboratory. Results indicated that 2,3,7,8-TCDD was not detected in any of the samples (see Appendix A-2). Of the samples analyzed sample number SP0515-1 had the highest concentration of 2,3,7,8-TCDF. A 2,3,7,8-TCDF concentration of 27.4 ug/kg was reported for the sample. This scrape sample was collected from the ceiling area. The Med-Tox analyses did not include results for congeners chlorinated in the 2,3,7,8-position for each of the other isomeric group (penta through octa).

Bechtel's laboratory subcontractor was Lars-Owe Kjeller (Umea Uiversitet) of Sweden. Lars-Owe Kjeller analyzed six of the split samples for PCDFs. Analytical results and sample locations are shown in Appendix A-3. The highest 2,3,7,8-TCDF concentration was 18 ug/kg found in Bechtel sample number BC0515-1. This scrape sample was a split of the Med-Tox sample number SP0515-1 described above. Analytical results for PCBs indicated a concentration of 17 mg/kg in a scrape sample collected in the same area.



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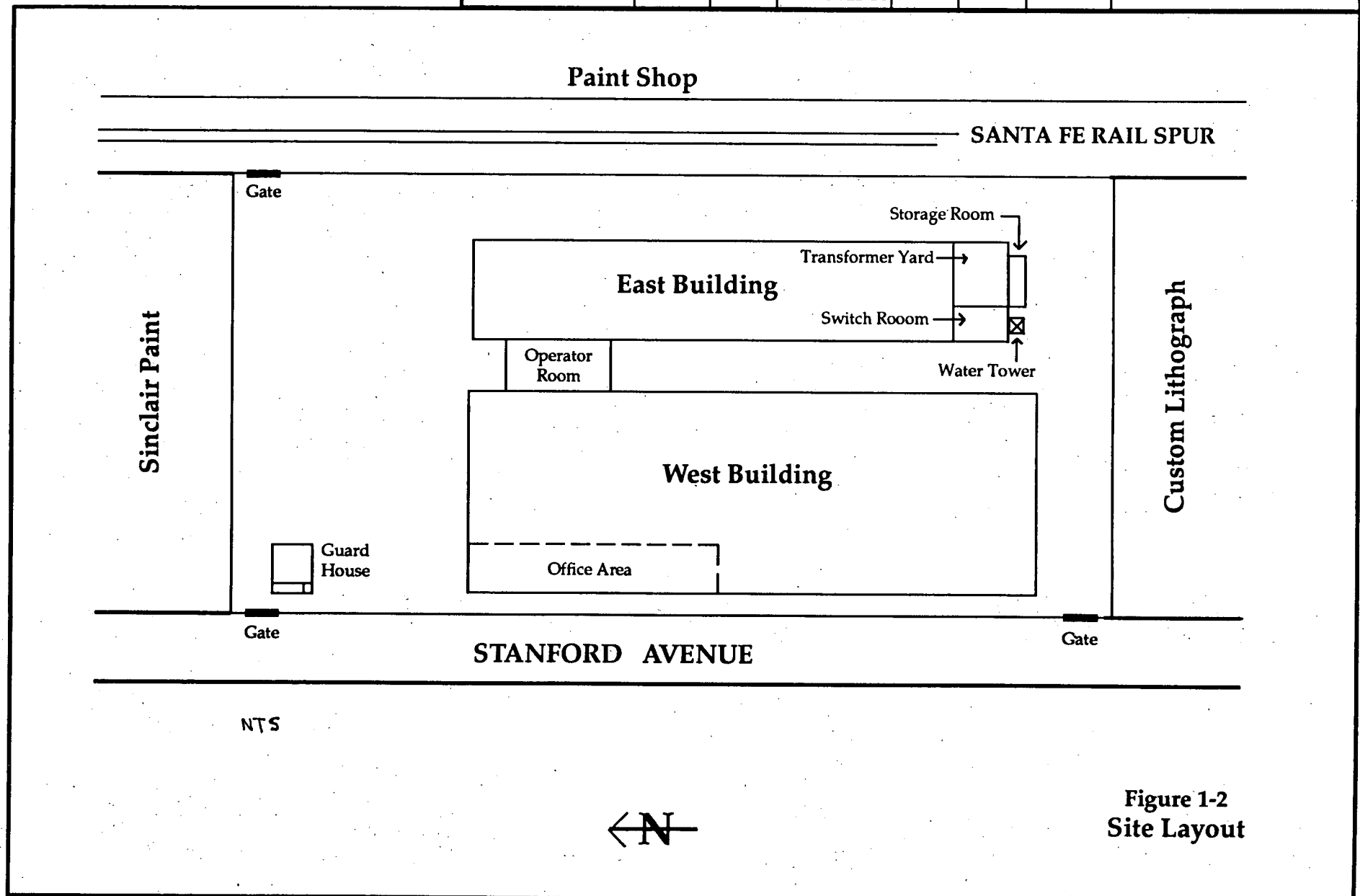
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DHS analytical results if any for the split samples were not reported to General Electric.

## SECTION 2

### PROCEDURES FOR EVALUATING PCDDs/PCDFs IN THE CEILING MATERIALS LOCATED IN THE EAST BUILDING

A portion of the roof sheathing measuring 30 feet by 50 feet in the East Building is charred. The roof sheathing consists of 3/4-inch nominal planks and has an estimated total volume of 3.5 cubic yards. As previously mentioned GE plans to demolish and dispose of the surface structures at the facility. To prepare for these activities, waste generated must be properly characterized.

To properly characterize the waste, a representative sample of the waste must be analyzed. A representative sample is "... a sample of a universe or whole which can be expected to exhibit the average properties of the universe or the whole"(CAC, Title 22, Section 66178). Randomly selected cores of the roof sheathing are representative samples.

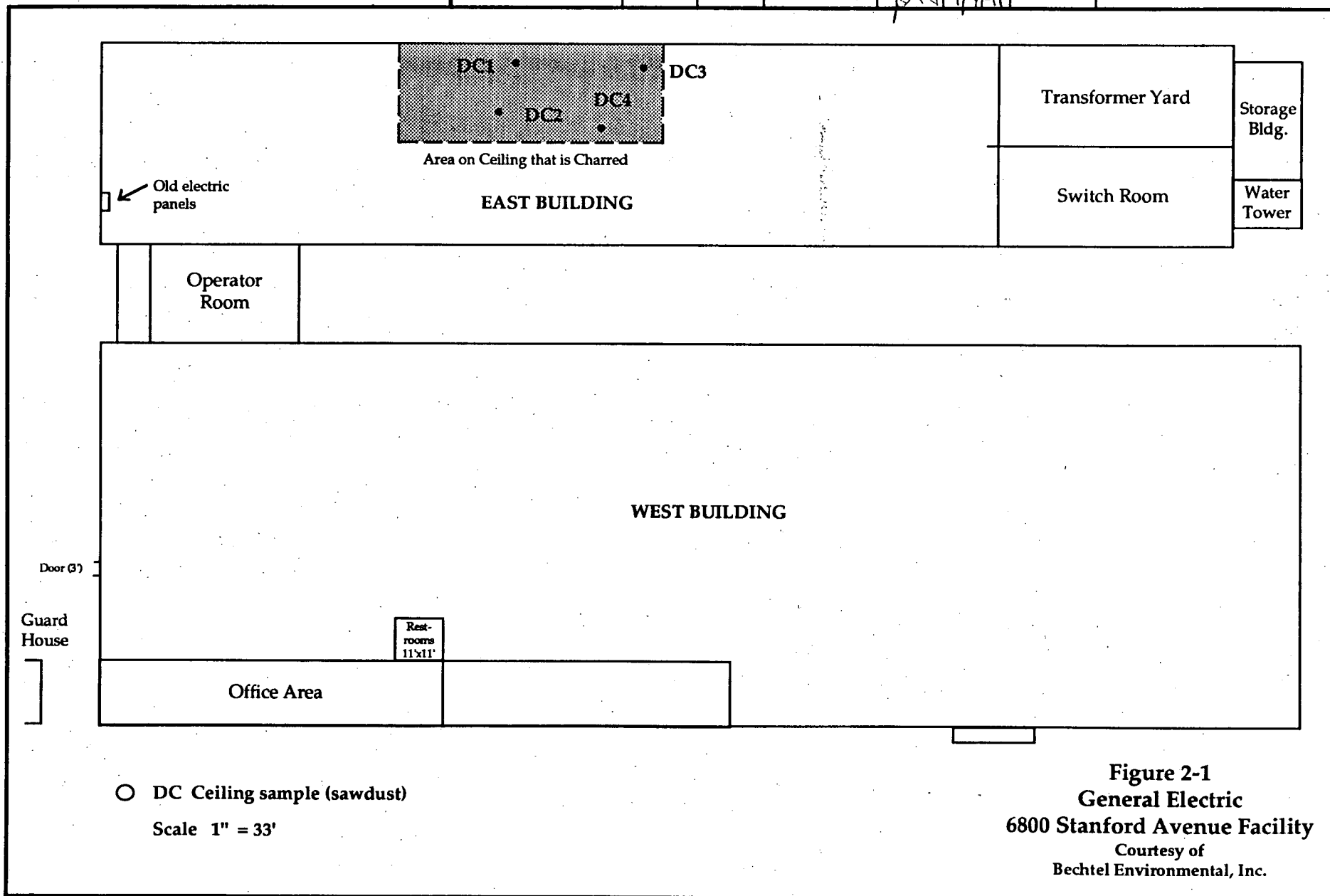
Samples collected during previous investigations were scrape samples not cores of the wood. These samples are not appropriate for waste characterization because scrapes from a portion of the wood would not exhibit average properties of the entire plank. In addition, it would not be reasonable to separate the wood into sections because 1) the depth of charring varies and 2) the depth penetrated by PCDDs and/or PCDFs is unknown. Therefore cores of the wood were collected and analyzed for PCDDs and PCDFs.

#### 2.1 Sampling and Analytical Procedures

Sawdust samples of ceiling material were collected from four locations within the area of interest in the East Building on December 20, 1990. The four sample locations (DC1, DC2, DC3, and DC4) are shown on Figure 2-1. The sample team used a scissor lift to reach the ceiling area. A power drill equipped with a 1.375-inch diameter bit was used to drill into the 3/4-inch wood ceiling. The wood planking was fully penetrated by the drill bit in order to collect a representative sample of the charred material. The resulting sawdust was collected on clean butcher-type paper and transferred into pre-cleaned 6 oz. wide mouth jars. Two jars full of sawdust were collected at each location to ensure that the laboratory received a minimum of 30 grams per sample.

The sample jars were sealed, and shipped under chain-of-custody procedures for analysis to Compuchem - Western Division laboratory. Sample procedures, documentation and custody procedures were consistent with Section One of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, 2nd edition, U.S. Environmental Protection Agency (EPA), 1982. Compuchem is certified by the EPA to perform PCDD/PCDF analysis.

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**Figure 2-1**  
**General Electric**  
**6800 Stanford Avenue Facility**  
Courtesy of  
Bechtel Environmental, Inc.

Samples received at the Compuchem laboratory in Sacramento, California were analyzed using EPA Method 8280 for PCDDs/PCDFs. Each analysis included data quality assurance documentation equivalent to EPA Contract Laboratory Procedures (CLP).

## 2.2 Sampling Results

Analytical results for PCDDs and PCDFs are presented in Table 2-1. Results indicate that 2,3,7,8-TCDD was not detected in the samples. The maximum detection limit was 1.5 ug/kg. Penta through octa chlorinated dibenzodioxins and tetra through octa chlorinated dibenzofurans were detected in one or more of the samples. The complete laboratory summary is included in Appendix B. CLP documentation is provided in Appendix E.

Table 2-1  
2,3,7,8 Congeners  
PCDDs/PCDFs Detected in Ceiling Wood  
from the GE Stanford Facility

| Compound <sup>a</sup> | Sample Number and Concentration<br>(ug / kg or ppb) |      |      |       |
|-----------------------|---|------|------|-------|
|                       | DC1   | DC2  | DC3  | DC4   |
| <b>PCDDs</b>          |   |      |      |       |
| 2,3,7,8 - TCDD        | <1.5  | <0.5 | <0.5 | <0.54 |
| other TCDD            | -   | -    | -    | -     |
| PeCDD                 | 1.5   | 0.27 | 0.25 | <0.53 |
| HxCDD                 | <1.5  | 1.8  | 1.03 | 1.2   |
| HpCDD                 | 1.3   | 2.5  | 2.58 | 0.83  |
| OCDD                  | 4   | 1.4  | <2.1 | <2.25 |
| <b>PCDFs</b>          |   |      |      |       |
| 2,3,7,8 - TDCF        | <3.4  | 1.7  | 1.3  | 1.44  |
| other TCDF            | -   | -    | -    | -     |
| 1,2,3,7,8 - PeCDF     | 0.57  | 0.62 | 0.37 | 0.37  |
| 2,3,4,7,8 - PeCDF     | 0.67  | 2.5  | 1.3  | 1.38  |
| HxCDF                 | 4.5   | 6.3  | 3.5  | 3.53  |
| HpCDF                 | 2.7   | 3.9  | 2.05 | 2.09  |
| OCDF                  | <2.1  | <2.1 | 1.3  | <1.38 |

<sup>a</sup> The compounds of concern for each homologous class are those isomers chlorinated at the 2,3,7,8 positions. The relative percent of these isomers in each isomers class is the number of congeners chlorinated at the 2,3,7,8 positions divided by the total number of congeners.

## SECTION 3

### WASTE CHARACTERIZATION

In order to determine if the wood ceiling material should be classified as hazardous or nonhazardous, information about the material was compared with DHS Criteria for identification of Hazardous and and Extremely Hazardous Waste (CAC 22, Article 11).

#### 3.1 Characterization based on CAC 22, Article 11, Section 66696 Toxicity Criteria

The following sections provide a characterization based on Article 11, Section 66696. For details of each criteria see CAC 22, Article 11.

##### 3.1.1. Section 66696 (a) (1), (2) and (3) Acute Toxicity Criteria

Section 66696 (a) (1), (2) and (3) establish toxicity based on acute oral, dermal and inhalation criteria. Acute toxicity testing of the wood ceiling material was not performed as part of this study. Based on the low concentrations of PCDDs and PCDFs in the samples (see Table 2-1) and the TCDD equivalency analysis performed pursuant to Section 66696 (6), the ceiling material is not considered acutely toxic. A complete summary of PCDDs/PCDFs analyses is presented in Appendix B.

##### 3.1.2 Section 66696 (4) Acute Aquatic Toxicity Criteria

Section 66696 (4) acute aquatic toxicity testing was not performed as part of this study. Based on the low concentrations of PCDDs and PCDFs in the samples (see Table 2-1) and the TCDD equivalency analysis performed pursuant to Section 66696 (6), the ceiling material is not considered acutely toxic to aquatic life. See Section 3.1.4 for toxicity evaluation.

##### 3.1.3 Section 66696 (5) Listed Substance Criteria

GE does not believe that the wood ceiling material contains any of the substances listed in Section 66696 (5) at a single or combined concentration exceeding 0.001 percent by weight. Therefore, the wood is not considered hazardous on this basis.

##### 3.1.4 Section 66696 (6) Toxicity Criteria

Although the wood is not a dioxin-contaminated waste based on its concentration of 2,3,7,8-TCDD (see Section 3.2), other compounds are present



that could affect toxicity. The toxicity of the mixture of other PCDDs/PCDFs was evaluated to ensure that the waste was not toxic and hazardous under the criteria presented in Article 11, Section 66696 (6).

Article 11, Section 66696 (6) states that a waste is toxic and hazardous if it "has been shown through experience to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties or persistence in the environment;"

Polychlorinated dibenzodioxins and polychlorinated dibenzofurans are believed to share a common toxic mechanism, with individual congeners differing widely in potency. The most biologically active congeners tend to be chlorinated in the 2,3,7,8-position. For regulatory purposes the relative carcinogenic potencies of the other PCDDs/PCDFs are generally estimated based on a comparison of their overall toxicity with that of 2,3,7,8-TCDD (NATO, 1988).

#### 2,3,7,8-TCDD Toxicity Equivalence Determination

Regulatory agencies have established procedures for estimating risks associated with exposure to PCDDs/PCDFs, based on their potency relative to that of 2,3,7,8-TCDD (Eaton et al 1982, EPA 1986, NATO 1988). The values developed by a workgroup of NATO are currently being used as the preferred toxicity equivalence factors by most international agencies including the USEPA. The international equivalence factors (I-TEFs) derived from a comparison of the relative potencies are presented in Table 3-1. To estimate the potency of complex PCDD or PCDF mixtures, the concentrations of the 2,3,7,8-chlorinated congeners in each isomeric group are multiplied by an appropriate I-TEF. For example, to derive a potency factor for a mixture of hepta-chlorodibenzodioxins (HpCDDs), the quantity of HPCDDs chlorinated at the 2,3,7 and 8 positions would be multiplied by a factor of 0.01 to obtain a TCDD<sub>equiv</sub> (2,3,7,8-TCDD toxicity equivalent value). Thus, according to the ranking scheme, 2,3,7,8-chlorinated HpCDDs are considered to be 100 times less potent than 2,3,7,8-TCDD.

The California DHS developed somewhat different TEFs for evaluating the toxicity of PCDDs/PCDFs mixtures (Hiatt, G 1989). The DHS TEF approach consists of using a factor of 1 for 2,3,7,8-chlorinated TCDD, PeCDDs, TCDF and PeCDFs; a factor of 0.03 for 2,3,7,8-chlorinated HxCDDs, HpCDDs, HxCDFs and HpCDFs; and a factor of 0 for all other PCDDs/PCDFs. The DHS TEF factors are presented in Table 3-1.

In order to ensure that the mixture of PCDDs/PCDFs present in the wood ceiling material was not toxic and hazardous, the TCDD<sub>equiv</sub> for the samples

**Table 3-1**  
**International Toxicity Equivalency Factors**  
**(I-TEFs) and TEFs Developed**  
**by the California DHS**

| Congener of Concern   | I - TEF | DHS - TEF |
|-----------------------|---------|-----------|
| <b>PCDDs</b>          |         |           |
| 2,3,7,8 - TCDD        | 1       | 1         |
| 1,2,3,7,8 - PeCDD     | 0.5     | 1         |
| 1,2,3,4,7,8 - HxCDD   | 0.1     | 0.03      |
| 1,2,3,6,7,8 - HxCDD   | 0.1     | 0.03      |
| 1,2,3,7,8,9 - HxCDD   | 0.01    | 0.03      |
| 1,2,3,4,6,7,8 - HpCDD | 0.01    | 0.03      |
| OCDD                  | 0.001   | 0         |
| <b>PCDFs</b>          |         |           |
| 2,3,7,8 - TDCF        | 0.1     | 1         |
| 2,3,4,7,8 - PeCDF     | 0.5     | 1         |
| 1,2,3,7,8 - PeCDF     | 0.05    | 1         |
| 1,2,3,4,7,8 - HxCDF   | 0.1     | 0.03      |
| 1,2,3,7,8,9 - HxCDF   | 0.1     | 0.03      |
| 1,2,3,6,7,8 - HxCDF   | 0.1     | 0.03      |
| 2,3,4,6,7,8 - HxCDF   | 0.1     | 0.03      |
| 1,2,3,4,7,8,9 - HpCDF | 0.01    | 0.03      |
| 1,2,3,4,7,8,9 - HpCDF | 0.01    | 0.03      |
| OCDF                  | 0.001   | 0         |
| Other PCDDs/PCDFs     | 0       | 0         |

Source: NATO 1988; Hiatt, G 1989

were compared with the persistent and bioaccumulative toxicity criteria established for 2,3,7,8-TCDD in Article 11, Section 66699 (2) (c). Under CAC Title 22, Article 11, Section 66699 (2) (c) a material is considered to be hazardous if it contains 2,3,7,8-TCDD at a concentration exceeding the Soluble Threshold Limit Concentration of 1 microgram-per-liter (ug/L) or exceeding the Total Threshold Limit Concentration (TTLC) of 10 ug/kg.

The TEF approaches developed by both the NATO and DHS were used to calculate TCDD equivalent values. Table 3-2 presents the TCDD<sub>equiv</sub> for the I-TEF approach and Table 3-3 presents TCDD<sub>equiv</sub> for the DHS TEF approach. The maximum TCDD<sub>equiv</sub> calculated using the two approaches are <3.6 ug/kg (I-TEF) and <7.9 ug/kg (DHS TEF). See Appendix C for TCDD<sub>equiv</sub> calculations. Based on a comparison of these two values with the TTLC of 10 ug/kg for 2,3,7,8-TCDD, the wood material is not considered hazardous.

Extractable concentrations were not determined for comparison to the STLC since the TCDD<sub>equiv</sub> was less than 10 times the STLC. If the total concentration for a "Type i" (millable solid) substance is less than 10 times its respective STLC, then determination of the extractable concentration using the Waste Extraction Test (WET) procedure is not required (DHS, July 1987).

#### 3.1.5 Section 66696 (7) CFR 261 Listed Waste Criteria

The wood ceiling material is not from any source listed in 40 CFR 261. Therefore, the waste is not hazardous based on the criteria established in Section 66696 (7).

#### 3.2 Characterization Based on CAC 22, Article 11, Section 66699 Bioaccumulative Toxicity Criteria

Under CAC Title 22, Article 11, a material is considered to be a dioxin-contaminated waste if it contains 2,3,7,8-TCDD at levels above the Soluble Threshold Limit Concentration of 1 microgram-per-liter (ug/L) or above the Total Threshold Limit Concentration (TTLC) of 10 ug/kg. The analytical results presented in Table 2-1 indicate that 2,3,7,8-TCDD was not detected in the ceiling material. The maximum detection limit was 1.5 ug/kg. The ceiling material is not considered hazardous based on the bioaccumulative toxicity criteria. The Waste Extraction Test (WET) was not performed as discussed in Section 3.1.4.

**Table 3-2**  
**Values of TCDD**  
**Calculated Using the I-TEF Approach**

| Compound <sup>a,b</sup> | Sample Number and Concentration<br>(ug / kg or ppb) |        |        |        |
|-------------------------|---|--------|--------|--------|
|                         | DC1   | DC2    | DC3    | DC4    |
| <b>PCDDs</b>            |   |        |        |        |
| 2,3,7,8 - TCDD          | <1.5  | <0.05  | <0.5   | <0.5   |
| other TCDD              | -   | -      | -      | -      |
| PeCDD                   | 0.75  | 0.135  | 0.125  | <0.25  |
| HxCDD                   | 0.15  | 0.18   | 0.1    | 0.12   |
| HpCDD                   | 0.013   | 0.024  | 0.026  | 0.008  |
| OCDD                    | 0.004   | 0.001  | 0.002  | 0.002  |
| <b>PCDFs</b>            |   |        |        |        |
| 2,3,7,8 - TCDF          | 0.34  | 0.17   | 0.13   | 0.14   |
| other TCDF              | -   | -      | -      | -      |
| 1,2,3,7,8 - PeCDF       | 0.03  | 0.03   | 0.02   | 0.02   |
| 2,3,4,7,8 - PrCDF       | 0.335   | 1.25   | 0.65   | 0.69   |
| HxCDF                   | 0.45  | 0.63   | 0.35   | 0.35   |
| HpCDF                   | 0.027   | 0.039  | 0.02   | 0.02   |
| OCDF                    | <0.002  | <0.002 | <0.001 | <0.001 |
| TCDD<br>equivalent      | <3.6  | <3.0   | <1.9   | <2.1   |

<sup>a</sup> The compounds of concern for each homologous class are those isomers chlorinated at the 2,3,7,8 positions. The relative percent of these isomers in each isomers class is the number of congeners chlorinated at the 2,3,7,8 positions divided by the total number of congeners.

<sup>b</sup> The compound was not detected at the listed detection limit. The detection limit was used to calculate the TCDD<sub>equiv</sub> and consequently the reported TCDD<sub>equiv</sub> is the maximum possible value and could be lower.

**Table 3-3**  
**Values of TCDD**  
**Calculated Using the DHS-TEF Approach**

| Compound <sup>a,b</sup> | Sample Number and Concentration<br>(ug / kg or ppb) |       |       |       |
|-------------------------|---|-------|-------|-------|
|                         | DC1   | DC2   | DC3   | DC4   |
| <b>PCDDs</b>            |   |       |       |       |
| 2,3,7,8 - TCDD          | <1.5  | <0.5  | <0.5  | <0.5  |
| other TCDD              | -   | -     | -     | -     |
| PeCDD                   | 1.5   | 0.27  | 0.25  | <0.05 |
| HxCDD                   | 0.045   | 0.054 | 0.03  | 0.036 |
| HpCDD                   | 0.039   | 0.07  | 0.08  | 0.025 |
| OCDD                    | 0   | 0     | 0     | 0     |
| <b>PCDFs</b>            |   |       |       |       |
| 2,3,7,8 - TCDF          | 3.4   | 1.7   | 1.3   | 1.44  |
| other TCDF              | -   | -     | -     | -     |
| 1,2,3,7,8 - PeCDF       | 0.57  | 0.62  | 0.37  | 0.37  |
| 2,3,4,7,8 - PrCDF       | 0.67  | 2.5   | 1.3   | 1.38  |
| HxCDF                   | 0.135   | 0.189 | 0.105 | 0.106 |
| HpCDF                   | 0.081   | 0.117 | 0.06  | 0.06  |
| OCDF                    | 0   | 0     | 0     | 0     |
| TCDD<br>equivalent      | 7.9   | 6.0   | 4.0   | 4.4   |

<sup>a</sup> The compounds of concern for each homologous class are those isomers chlorinated at the 2,3,7,8 positions. The relative percent of these isomers in each isomers class is the number of congeners chlorinated at the 2,3,7,8 positions divided by the total number of congeners.

<sup>b</sup> The compound was not detected at the listed detection limit. The detection limit was used to calculate the TCDD<sub>equiv</sub> and consequently the reported TCDD<sub>equiv</sub> is the maximum possible value and could be lower.

### 3.3 Section 66702 Ignitability Criteria

The wood ceiling material would not be considered hazardous on the basis of ignitability as described in Section 66702.

### 3.4 Section 66703 Reactivity Criteria

The wood ceiling material would not be considered a reactive and hazardous waste based on Section 66703 criteria.

### 3.5 Section 66704 Corrosivity Criteria

The wood ceiling material would not be considered a corrosive and hazardous waste based on Section 66704 criteria.

### 3.6 Proposed Waste Classification

The study indicated that 2,3,7,8-TCDD was not detected in samples from the site at a maximum detection limit of 1.5 ug/kg and, therefore, do not meet the criteria for a California dioxin contaminated waste under Section 66699. The levels of TCDD<sub>equiv</sub> in the ceiling material are probably in the range of 2 - 4 ug/kg based on the I-TEF approach and in the range of 4 - 8 ug/kg based on the DHS TEF approach. These values are all below the TTLC level for 2,3,7,8-TCDD of 10 ug/kg. Based on these results, the PCDDs/PCDFs present at the facility are not considered a California toxic waste under Section 66696 (6). In addition, the material would not be considered an Extremely Hazardous Waste by any of the criteria in CAC 22, Article 11, Section 66717.

#### SECTION 4

#### REQUEST FOR CALIFORNIA DEPARTMENT OF HEALTH SERVICES CONCURRENCE WITH CLASSIFICATION

General Electric Company requests concurrence from the California DHS with the determination that the wood ceiling material (approximately 3.5 cubic yards) from the East Building of the Stanford Avenue Facility is not a dioxin-contaminated waste. GE will handle and dispose of the ceiling material during building demolition in accordance with all applicable State of California and federal regulations.

## SECTION 5 REFERENCES

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North Atlantic Treaty Organization (NATO) 1988. Pilot Study on International Information Exchange on Dioxins and Related Compounds. International Toxicity Equivalency Factor (I-TEF) Method of Risk Assessment for Complex Mixtures of Dioxins and Related Compounds. Committee on the Challenges of Modern Society. Report No. 176, August 1988.

David J. Leu, Ph.D., Alternative Technology Division, Toxic Substance Control Division, California Department of Health Services, July 23, 1987. Interpretation of the Waste Extraction Test. Memo to Certified Hazardous Laboratories.

## **Appendix A**

### **Previous PCDD/PCDF Analytical Results**

**Appendix A-1**

**Med-Tox/Brehm Laboratory Analytical Results  
For Samples Collected Between July 1984 - March 1985**

PCDD/PCDF:

Analysis performed by Brehm Laboratory

| Location                      | Type               | Concentration/ppb |
|-------------------------------|--------------------|-------------------|
| Back Building<br>Ceiling Area | 2,3,7,8-TCDD       | 0.498             |
|                               | total tetra dioxin | 30.1              |
|                               | total penta dioxin | 93.6              |
|                               | total hexa dioxin  | 75.6              |
|                               | total hepta dioxin | 69.6              |
|                               | total octa dioxin  | 11.6              |
|                               | 2,3,7,8-TCDF       | 24.3              |
|                               | total tetra furan  | 102.0             |
|                               | total penta furan  | 166.0             |
|                               | total hexa furan   | 67.1              |
|                               | total hepta furan  | 62.2              |
|                               | total octa furan   | 20.9              |

**Appendix A-2**

**Med-Tox/Brehm Laboratory Analytical Results  
For Samples Collected On May 15, 1985**



REC'D JUL 29 1985

OCCUPATIONAL & ENVIRONMENTAL HEALTH SERVICES

401 Warner Ave., Suite A • Tustin, California 92680 • (714) 669-0620

July 29, 1985

Mr. Bob Menchen  
ENDURA METAL PRODUCTS  
6900 Stanford Avenue  
Los Angeles, CA 90001

Dear Mr. Menchen:

Enclosed please find a copy of a table of data in which the concentrations of CDDs/CDFs present in the Endura Metal Products samples which were sent to the Brehm Laboratory for analysis are listed. Analyses of extracts of these same samples are being completed in which the concentrations of PCBs and PCP are being quantitated and these data will be telephoned to you as soon as possible. Our complete report will follow in about 10 days.

Thank you for your patience.

Sincerely,

A handwritten signature in dark ink, appearing to read "Don R. Thorne", is written over the word "Sincerely,".

Don R. Thorne, Ph.D.  
Toxicologist/Principal

DRT:pc/RH:107  
Enclosure

RESULTS OF HPLC-MS ANALYSES OF SAMPLES FOR TETRACHLORINATED THIOUR  
DIBENZO-P-DIOXINS (CDDs), DIBENZO-FURANS (CDFs), 2,3,7,8-TETRA-CDD & 2,3,7,8-TETRA-CDF

Concentrations Found (nanograms per gram of sample, or parts-per-billion) a, b.

| MEB-11    | Sample | 2378   | 3312 | Surrogate | Total Tetra CDDs | Total Penta CDDs | Total Hexa CDDs | Total Hepta CDDs | Total Octa CDDs | 2378   | 37014  | Total Tetra CDFs | Total Penta CDFs | Total Hexa CDFs | Total Hepta CDFs | Total Octa CDFs |
|-----------|--------|--------|------|-----------|------------------|------------------|-----------------|------------------|-----------------|--------|--------|------------------|------------------|-----------------|------------------|-----------------|
| Lab NO    | Lab NO | TCDD   | TCDF | gate      | CDDs             | CDDs             | CDDs            | CDDs             | CDDs            | TCDF   | TCDF   | CDFs             | CDFs             | CDFs            | CDFs             | CDFs            |
| S-115-1   | MEB-4  | NO     | 55.1 | 105.9     | NO               | NO               | NO              | 1.66             | 4.40            | 100.0  | 1.05   | 58.2             | 11.0             | 27.3            | 50.9             | 25.9            |
|           |        | 0.4573 |      |           | 0.0143           | 0.0332           | 0.0529          |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-2   | MEB-3  | NO     | 76.7 | 181.8     | NO               | NO               | NO              | 4.07             | 7.37            | 76.0   | 1.05   | 25.1             | 5.04             | 7.41            | 12.4             | 13.7            |
|           |        | 0.4235 |      |           | 0.0173           | 0.0627           | 0.0752          |                  |                 |        |        |                  |                  |                 |                  |                 |
| Lab BLANK | MEB-10 | NO     | 48.8 | 97.5      | NO               | NO               | NO              | NO               | NO              | 100.0  | NO     | 51.4             | NO               | NO              | NO               | NO              |
|           |        | 0.4249 |      |           | 0.0116           | 0.0278           | 0.0321          | 0.0467           | 0.0770          |        | 0.2035 |                  | 0.0093           | 0.0151          | 0.0165           | 0.0420          |
| Lab BLANK | MEB-10 | NO     | 46.4 | 92.6      | NO               | NO               | NO              | NO               | NO              | 47.2   | NO     | 43.3             | NO               | NO              | NO               | NO              |
|           |        | 0.4033 |      |           | 0.0054           | 0.0149           | 0.0251          | 0.0444           | 0.0281          |        | 0.2053 |                  | 0.0070           | 0.0078          | 0.0168           | 0.0374          |
| S-115-6   | MEB-6  | NO     | 98.1 | 93.5      | NO               | NO               | NO              | 0.271            | 0.450           | 95.5   | 0.0631 | 100.0            | 0.257            | 0.656           | 1.11             | 0.622           |
|           |        | 0.4047 |      |           | 0.0119           | 0.0134           | 0.0517          |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-8   | MEB-4  | NO     | 72.2 | 52.8      | NO               | NO               | NO              | 2.31             | 4.69            | 104.0  | 1.02   | 60.9             | 16.1             | 45.8            | 30.3             | 63.9            |
|           |        | 0.4625 |      |           | 0.124            | 0.334            | 0.623           |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-9   | MEB-3  | NO     | 87.7 | 94.6      | 0.0102           | NO               | 0.133           | 0.284            | 0.482           | 100.0  | 0.0319 | 99.5             | 0.103            | 0.167           | 2.326            | 0.173           |
|           |        | 0.4238 |      |           | 0.0103           |                  |                 |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-10  | MEB-10 | NO     | 98.8 | 93.4      | 0.0053           | NO               | 0.0214          | 0.0547           | 0.457           | 97.4   | 0.0167 | 100.0            | 0.0651           | 0.0667          | 0.142            | 0.0522          |
|           |        | 0.4027 |      |           | 0.0104           |                  |                 |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-11  | MEB-11 | NO     | 4.9  | 93.6      | NO               | NO               | NO              | 0.419            | 1.16            | 53.9   | NO     | 4.5              | NO               | 0.099           | 2.58             | 0.439           |
|           |        | 0.124  |      |           | 0.258            | 0.553            | 0.685           |                  |                 |        | 0.191  |                  | 0.225            |                 |                  |                 |
| S-115-3   | MEB-3  | NO     | 62.2 | 92.9      | NO               | NO               | 0.299           | 6.29             | 6.46            | 42.4   | 1.37   | 70.0             | 6.75             | 9.09            | 17.3             | 13.1            |
|           |        | 0.4352 |      |           | 0.124            | 0.204            |                 |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-7   | MEB-7  | NO     | 42.7 | 86.8      | NO               | NO               | 1.64            | 3.77             | 13.5            | 100.0  | 1.87   | 66.4             | 14.0             | 15.7            | 31.6             | 29.1            |
|           |        | 0.119  |      |           | 0.0076           | 0.337            |                 |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-9   | MEB-9  | NO     | 48.5 | 79.5      | NO               | NO               | 0.206           | 0.327            | 33.0            |        | 2.41   | 44.5             | 0.16             | 5.29            | 2.28             | 1.28            |
|           |        | 0.4245 |      |           | 0.0146           | 0.0295           | 0.0193          |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-8   | MEB-8  | NO     | 52.6 | 120.9     | NO               | NO               | 0.267           | 0.599            | 1.21            | 73.3   | 1.39   | 49.5             | 6.52             | 13.2            | 29.7             | 14.7            |
|           |        | 0.0166 |      |           | 0.0181           | 0.0565           |                 |                  |                 |        |        |                  |                  |                 |                  |                 |
| S-115-13  | MEB-13 | NO     | 87.7 | 91.8      | NO               | NO               | 0.283           | 1.00             | 80.8            | 0.0178 | 98.4   | 0.469            | 0.432            | 0.648           | 0.113            | NO              |
|           |        | 0.0038 |      |           | 0.0055           | 0.0593           | 0.0421          |                  |                 |        |        |                  |                  |                 |                  | 0.124           |
| S-115-12  | MEB-12 | NO     | 52.4 | 94.0      | 0.0956           | NO               | 0.446           | 0.271            | 0.259           | 60.8   | 1.27   | 63.4             | 4.73             | 6.64            | 2.75             | 0.341           |
|           |        | 0.0373 |      |           | 0.0743           |                  |                 |                  |                 |        |        |                  |                  |                 |                  | 0.117           |
| S-115-12  | MEB-12 | NO     | 52.1 | 95.4      | NO               | NO               | NO              | NO               | NO              | 38.2   | 0.0075 | 52.6             | 0.0075           | 0.105           | NO               | NO              |
|           |        | 0.0056 |      |           | 0.0117           | 0.0610           | 0.0532          | 0.0668           | 0.0078          |        |        |                  |                  | 0.0641          | 0.110            | 0.170           |
| S-115-1   | MEB-1  | NO     | 94.3 | 92.3      | 15.3             | 78.1             | 78.8            | 29.2             | 7.49            | 74.8   | 27.4   | 100.0            | 66.8             | 172             | 112              | 33.7            |
|           |        | 0.230  |      |           |                  |                  |                 |                  |                 |        |        |                  |                  |                 |                  | 7.45            |
| S-115-2   | MEB-2  | NO     | 82.0 | 94.5      | 0.250            | NO               | 1.97            | 1.67             | 5.68            | 69.0   | 2.50   | 100.0            | 7.96             | 21.2            | 19.3             | 6.69            |
|           |        | 0.0200 |      |           | 0.375            |                  |                 |                  |                 |        |        |                  |                  |                 |                  | 4.09            |

Sample ID  
SP0515-4

3

6

4 dup.

5

10

11

3 dup

7

9

8

13

12

SP0515-1

2

a. The designation NO indicates "None Detected" in excess of the minimum detectable concentration which is listed directly below the NO designation.

b. Unless otherwise indicated, the concentrations listed for 2,3,7,8 TCDF could include contributions from co-eluting TCDF isomers.

c. Duplicate sample. A separate aliquot of the sample was weighed, extracted, and the concentrations of CDDs/CDFs were quantitated in a separate analysis.

d. Poor recoveries for the <sup>12</sup>C12-2,3,7,8-TCDD and <sup>13</sup>C13,7,8-TCDF internal standards were obtained due to interferences.

e. MEB 5-12-0 is a sample aliquot which was obtained from the surface of the wood block (the paint was scraped from the surface). MEB 5-12-1 is a sample aliquot which was obtained from the sub-surface (by drilling into the block) of the wood block.

## LOCATION OF SAMPLES

- SP0515-1 East (back) building, ceiling - repeat of positive sample
- SP0515-2 East (back) building, ceiling - above easternmost double doors
- SP0515-3 East (back) building, floor - general area
- SP0515-4 East (back) building, floor - crack or grate area
- SP0515-5 West (front) building, ceiling - Les Menchen's office
- SP0515-6 West (front) building, floor - general area
- SP0515-7 West (front) building, floor - crack or grate area
- SP0515-8 Rear of east (back) building, sump area
- SP0515-9 Rear of east (back) building, asphalt area - NE corner near railroad tracks
- SP0515-10 East (back) of building, product "cardboard" sample
- SP0515-11 West (front) building, product "wipe sample"
- SP0515-12 East (back) building - clean wood sample from ceiling
- SP0515-13 Control; clean soil sample from outside of building upstream of contamination

### Additional control samples:

- a) Performance sample
- b) Laboratory blank



**Appendix A-3**

**Bechtel/Lars-Owe Kjeller Laboratory Analytical Results  
For Samples Collected On May 15, 1985**

UMEA UNIVERSITET

Avdelningen för organisk kemi

Telefon  
090 - 16 50 00



UNIVERSITY OF UMEA

Department of Organic Chemistry

Telephone  
46 - 90 - 16 50 00

Christoffer Rappe, Mj

1985-10-02

HAZARDOUS CHEMICAL WASTE

KENNETH E. BARR

OCT 11 1985

Dr. Kenneth E. Barr  
Project Manager  
Advanced Technology Division  
Bechtel National Inc.  
P.O. Box 3965  
San Francisco, CA 94119  
U.S.A.

Dear Dr. Barr,

In our earlier report unfortunately our samples # 5 and # 6 (your 8 and 12) were exchanged. We have now reanalyzed these samples. Enclosed please find correct tables and chromatograms. I hope this clarifies some questions.

Sincerely yours

*Christoffer Rappe*

Christoffer Rappe, professor

Umeå University  
901 87 UMEA Sweden

Umeå University

Bechtel National, Inc.  
Att: Kennet E. Barr

Levels of dioxins and dibensofurans.

|                       | mg/kg | mg/kg | mg/kg | Σ mg/kg |
|-----------------------|-------|-------|-------|---------|
| MPR 455:              | 1     | 2     | 3     | 4       |
| Att nr. BC0515-       | 1     | 3     | 4     | 5       |
| 2,3,4,8-/             |       |       |       |         |
| 2.3.7.8-TCDF          | 18    | 1.1   | 3.2   | 1.5     |
| Tot. TCDF's           | 58    | 6.4   | 19    | 5.6     |
| REC 13C-2378-TCDF     | 57    | 69    | 33    | 83      |
| 2.3.7.8-TCDD          | NA    | NA    | NA    | NA      |
| Tot. TCDD's           | NA    | NA    | NA    | NA      |
| 1.2.3.4.8-/           |       |       |       |         |
| 1.2.3.7.8-PnCDF       | 39    | 5.5   | 36    | 18      |
| 2.3.4.7.8-PnCDF       | 96    | 9.4   | 21    | 21      |
| Tot. PnCDF's          | 740   | 130   | 230   | 140     |
| REC 13C-12378-PnCDF   | 66    | 69    | 53    | 87      |
| 1.2.3.7.8-PnCDD       | 0.77  | 0.03  | ND    | ND      |
| Tot. PnCDD's          | 25    | 0.45  | ND    | ND      |
| 1.2.3.4.7.9-/         |       |       |       |         |
| 1.2.3.4.7.8-HxCDF     | 9.2   | 2.8   | 14    | 12      |
| 1.2.3.6.7.8-HxCDF     | 4.3   | 0.42  | 2.5   | 1.2     |
| 1.2.3.7.8.9-HxCDF     | 3.3   | 0.78  | 7.1   | 2.5     |
| 2.3.4.6.7.8-HxCDF     | 9.7   | 0.72  | 2.9   | 1.5     |
| Tot. HxCDF's          | 68    | 26    | 78    | 40      |
| REC 13C-123478-HxCDF  | 64    | 66    | 31    | 94      |
| 1.2.3.4.7.8-HxCDD     | 3.0   | 0.19  | 0.32  | ND      |
| 1.2.3.6.7.8-HxCDD     | 5.2   | 0.27  | 1.6   | 0.85    |
| 1.2.3.7.8.9-HxCDD     | 1.1   | 0.03  | 0.14  | ND      |
| Tot. HxCDD's          | 45    | 1.5   | 6.0   | 3.1     |
| Tot. HpCDF's          | 31    | 13    | 64    | 41      |
| REC 13C-1234678-HpCDF | 59    | 49    | 44    | 81      |
| Tot. HpCDD's          | 20    | 3.7   | 4.8   | 6.0     |
| OCDF                  | 5.1   | 15    | 89    | 53      |
| REC 13C-OCDF          | 45    | 22    | 40    | 56      |

LARS-OWE KJELLER  
Umeå Universitet  
901 87 UMEÅ Sweden

Umeå 85-10-01

Bechtel National, Inc.  
Att: Kennet E. Barr

Value of dioxins and dibensofurans.

| MPR 445:          | 5A   | 5B   | 6A   | 6B   |
|-------------------|------|------|------|------|
| Att nr. BC0515-   | 8    | 8    | 12   | 12   |
| 2,3,4,8-/         |      |      |      |      |
| 2.3.7.8-TCDF      | 1.2  | 1.2  | 0.20 | 0.26 |
| Tot. TCDF's       | 2.8  | 2.9  | 0.55 | 0.71 |
| 2.3.7.8-TCDD      | NA   | NA   | NA   | NA   |
| Tot. TCDD's       | NA   | NA   | NA   | NA   |
| 1.2.3.4.8-/       |      |      |      |      |
| 1.2.3.7.8-PnCDF   | 1.4  | 0.9  | 0.20 | 0.17 |
| 2.3.4.7.8-PnCDF   | 3.9  | 2.9  | 0.56 | 0.41 |
| Tot. PnCDF's      | 21.0 | 15.6 | 3.5  | 2.6  |
| 1.2.3.7.8-PnCDD   | ND   | ND   | ND   | ND   |
| Tot. PnCDD's      | ND   | ND   | ND   | ND   |
| 1.2.3.4.7.9-/     |      |      |      |      |
| 1.2.3.4.7.8-HxCDF | 2.7  | 1.4  | 0.18 | 0.14 |
| 1.2.3.6.7.8-HxCDF | 0.37 | 0.5  | 0.03 | 0.04 |
| 1.2.3.7.8.9-HxCDF | 0.94 | 1.0  | 0.05 | 0.08 |
| 2.3.4.6.7.8-HxCDF | 0.35 | 0.4  | 0.05 | 0.03 |
| Tot. HxCDF's      | 9.8  | 8.1  | 0.34 | 0.27 |
| 1.2.3.4.7.8-HxCDD | 0.08 | 0.06 | ND   | ND   |
| 1.2.3.6.7.8-HxCDD | 0.03 | 0.01 | ND   | ND   |
| 1.2.3.7.8.9-HxCDD | ND   | ND   | ND   | ND   |
| Tot. HxCDD's      | 0.12 | 0.10 | 0.04 | 0.03 |
| Tot. HpCDF's      | 7.8  | 3.7  | 0.38 | 0.24 |
| Tot. HpCDD's      | 0.22 | 0.13 | 0.6  | 0.05 |
| OCDF              | 12.6 | 5.3  | 0.17 | 0.24 |
| OCDD              | 1.2  | 0.41 | 0.12 | 0.17 |

The value is given in ng/g.

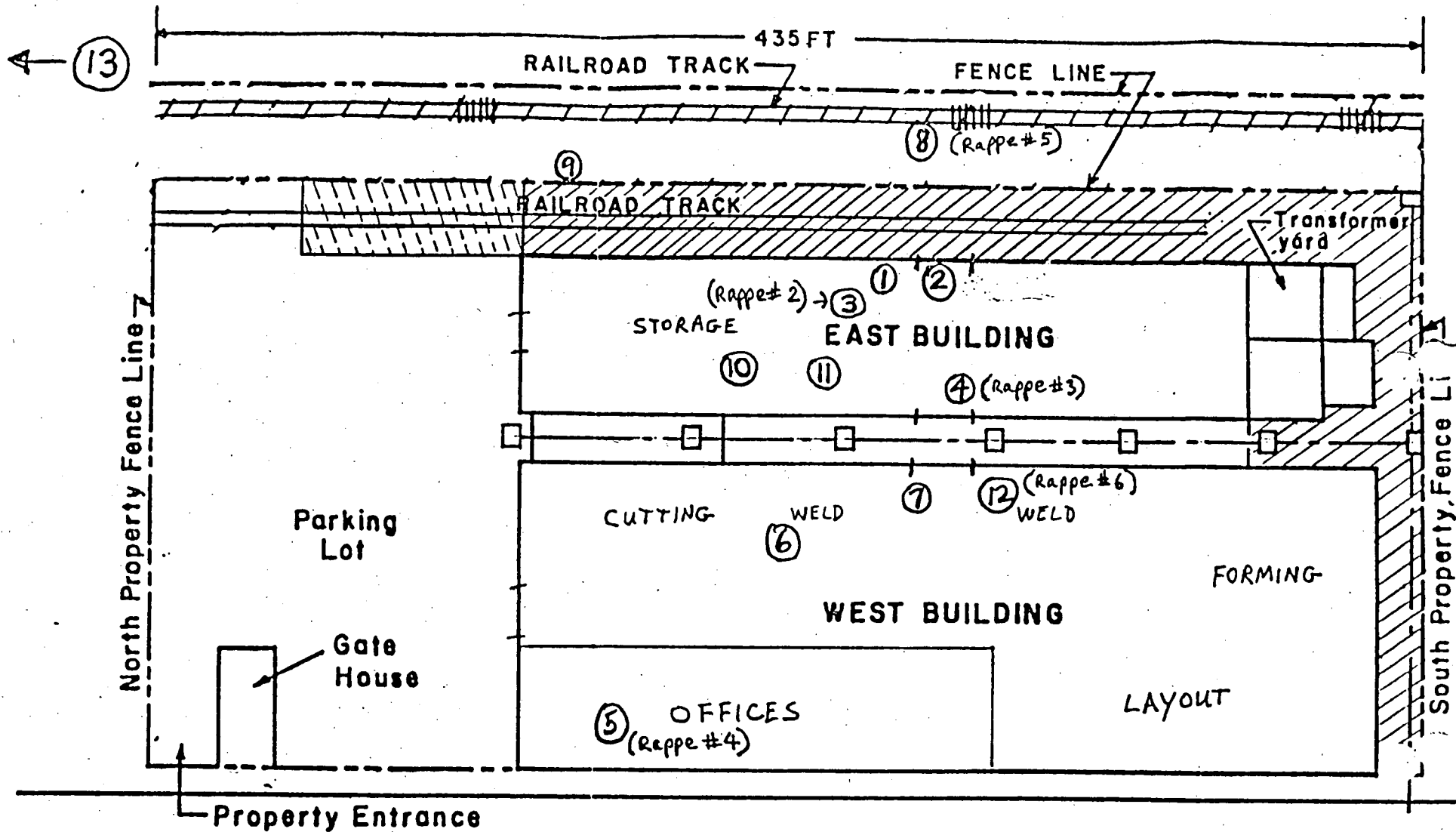
NA = Not Analyzed

ND = Not Detected, Detection limit 0.01-0.02 ng/g.

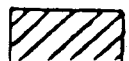
The values are given in ng/g. for sample 1,2,3,5,6  
and for sample 4, ng. tot. in sample

NA = Not Analyzed

ND = Not Detected, Detection limit 0.01-0.02 ng/g.



Asphalt



Concrete

BECHTEL N  
Son

UMEÅ UNIVERSITET

Avdelningen för organisk kemi

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Department of Organic Chemistry

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Christoffer Rappe, Mj

1985-06-19

Analytical protocol

The samples are spiked using  $^{13}\text{C}_{12}$ -labelled standards prior to extraction (soxhlet-toluene). In the clean-up systems we are using columns of alox, silica gel and carbon.

./.  
For the HRGC separation we are using a SP 2330 column, which can separate the toxic PCDDs and PCDFs, see enclosed fragmentograms. For the quantification we use a mass spectrometer and the reported figures are based on the recovery of the  $^{13}\text{C}$ -labelled standards.

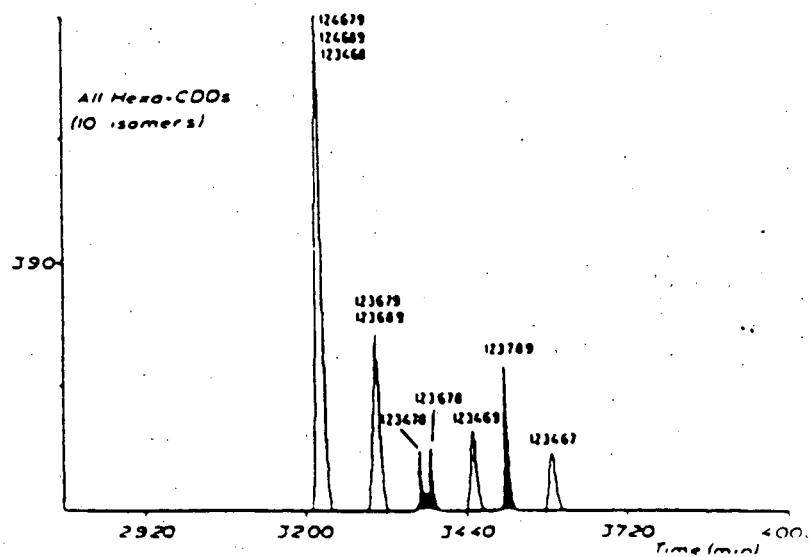
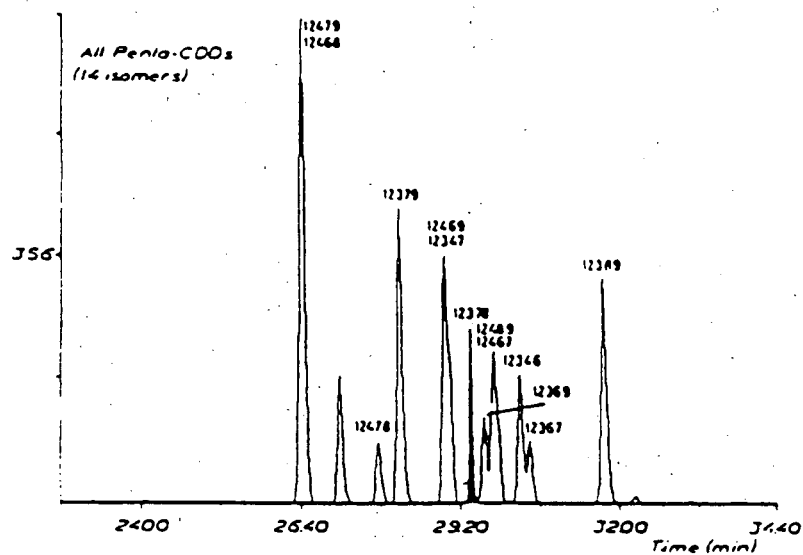
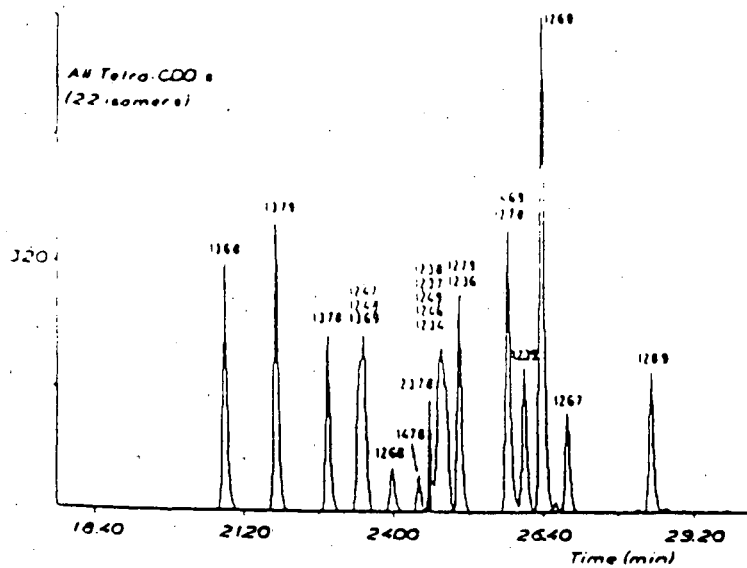
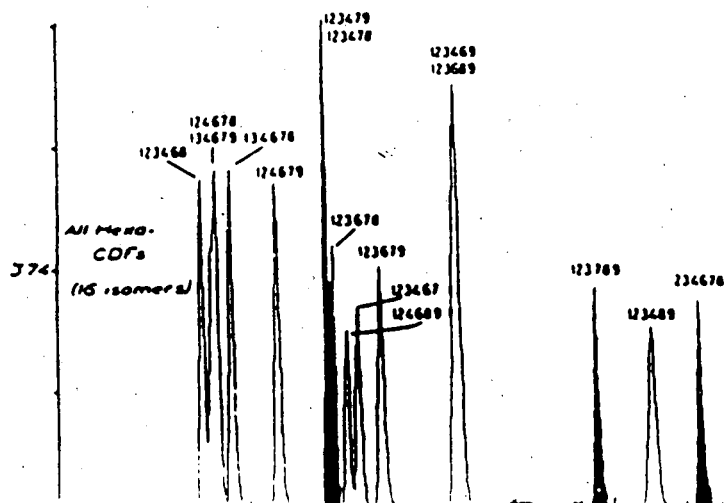
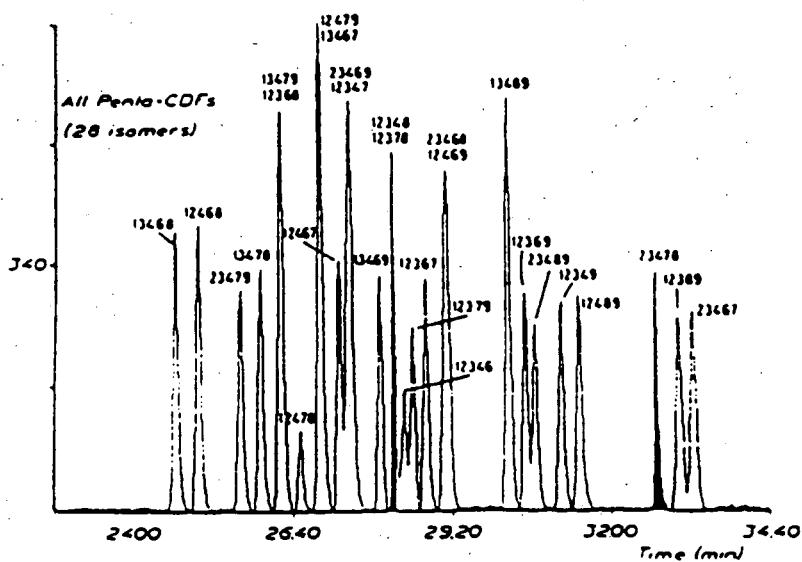
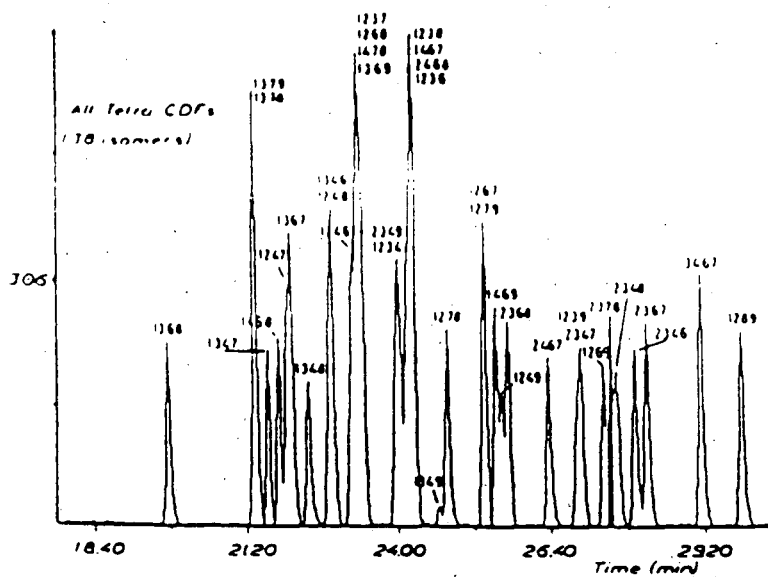


Fig. 3-1. Separation of the 22 tetra- 14 penta- and







# CHAIN OF CUSTODY RECORD

BECHTEL PROJECT NO. 17282-001

SAMPLER'S NAME Bechtel Nat'l Inc

LABORATORY PROJECT NO. \_\_\_\_\_

SAMPLER'S SIGNATURE K.E. Barr

SITE IDENTIFICATION Endura

BECHTEL SUPERVISOR \_\_\_\_\_

DATE 6/6/85

| SAMPLE ID NUMBER | MATRIX OF SAMPLE        | TIME TAKEN        | PRESERVATIVES | ARCHIVE | ANALYZE | REMARKS |
|------------------|-------------------------|-------------------|---------------|---------|---------|---------|
| BC0515-1         | WOOD SHAVING            | 15 MAY 85<br>1800 | NONE          |         | ✓       |         |
| BC0515-3         | DUST & SOIL             | "                 | "             |         | ✓       |         |
| BC0515-4         | DUST & RESIDUE          | "                 | "             |         | ✓       |         |
| BC0515-5         | Fiberglass FILTER MAT'L | "                 | "             |         | ✓       |         |
| BC0515-8         | SOIL                    | "                 | "             |         | ✓       |         |
| BC0515-12        | WOOD                    | "                 | "             |         | ✓       |         |
|                  |                         |                   |               |         |         |         |
|                  |                         |                   |               |         |         |         |
|                  |                         |                   |               |         |         |         |
|                  |                         |                   |               |         |         |         |

RELINQUISHED BY K.E. Barr DATE/TIME 6/6/85 1500 RECEIVED BY \_\_\_\_\_

RELINQUISHED BY \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY \_\_\_\_\_

RELINQUISHED BY \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY \_\_\_\_\_

X RECEIVED BY C. Bayne FOR LABORATORY, DATE/TIME 6/17/85 10

AUTHORIZED FOR DISPOSAL BY \_\_\_\_\_ TYPE OF DISPOSAL \_\_\_\_\_

RELINQUISHED TO \_\_\_\_\_ FOR DISPOSAL, DATE/TIME \_\_\_\_\_



## CHAIN OF CUSTODY RECORD

BECHTEL PROJECT NO. 17282-001

SAMPLER'S NAME

MED-TOX

LABORATORY PROJECT NO. \_\_\_\_\_

SAMPLER'S SIGNATURE

SITE IDENTIFICATION ENDURA

BECHTEL SUPERVISOR

K.E. Ben

DATE

5/15/85

| SAMPLE ID<br>NUMBER | MATRIX OF<br>SAMPLE | TIME TAKEN | PRESERVATIVES | ARCHIVE | ANALYZE | REMARKS |
|---------------------|---------------------|------------|---------------|---------|---------|---------|
| GE0515-1            | Wood Surface        | 4 to 9 pm  | NONE          |         | ✓       |         |
| GE0515-8            | Soil                |            |               |         | ✓       |         |
| GE0515-12           | Wood                |            |               |         | ✓       |         |
| GE0515-13           | Soil                |            |               |         | ✓       |         |
|                     |                     |            |               |         |         |         |
| 3C0515-1            | Wood Surface        |            |               |         | ✓       |         |
| BC0515-2            | Wood Surface        |            |               |         | ✓       |         |
| BC0515-3            | Dust & Soil         |            |               |         | ✓       |         |
| BC0515-4            | Dust & Residue      |            |               |         | ✓       |         |
| 3C0515-5            | FILTER MAT'L        |            |               |         | ✓       |         |
| BC0515-6            | Dust & Soil         |            |               |         | ✓       |         |
| 3C0515-7            | Dust & Residue      |            |               |         | ✓       |         |
| 3C0515-8            | Soil                |            |               |         | ✓       |         |
| BC0515-9            | Soil                |            |               |         | ✓       |         |
| 3C0515-10           | CARDBOARD           |            |               |         | ✓       |         |
| BC0515-11           | Wipe Sample         |            |               |         | ✓       |         |
| 3C0515-12           | Wood                |            |               |         | ✓       |         |
| BC0515-13           | Soil                | ✓          | ✓             |         | ✓       |         |
|                     |                     |            |               |         |         |         |
|                     |                     |            |               |         |         |         |

RELINQUISHED BY

DATE/TIME

5/15/85

RECEIVED BY

K.E. Ben

RELINQUISHED BY \_\_\_\_\_

DATE/TIME \_\_\_\_\_

RECEIVED BY \_\_\_\_\_

RELINQUISHED BY \_\_\_\_\_

DATE/TIME \_\_\_\_\_

RECEIVED BY \_\_\_\_\_

RECEIVED BY \_\_\_\_\_

FOR LABORATORY,

DATE/TIME \_\_\_\_\_

AUTHORIZED FOR DISPOSAL BY \_\_\_\_\_

TYPE OF DISPOSAL \_\_\_\_\_

RELINQUISHED TO \_\_\_\_\_

FOR DISPOSAL,

DATE/TIME \_\_\_\_\_

## **Appendix B**

### **Summary of CompuChem PCDD/PCDF Analytical Results**



February 14, 1991

Bechtel Corporation  
P.O. Box 3965  
San Francisco, CA 94119-3965

Attention: Mr. Russ Stenzel

Subject: Report of Data - Case Number 7363

Dear Mr. Stenzel:

Enclosed you will find additional data sheets for the CL4-CL8, Method 8280 Analysis of CHEMWEST sample numbers 7363-1,2,3; your sample numbers DC1, DC2, and DC3.

Project Number: 17282-003.

Due to matrix effects some of the internal standard recoveries of the above samples were low. In order to obtain better data the samples have been re-extracted at a smaller sample size (2 grams) and re-analyzed. Results for samples DC1 (CW#7363-1RX), DC2 (CW#7363-2RX) and DC3 (CW#7363-3RX) are enclosed in this report. Sample DC4 (CW7363-5) is currently being re-analyzed and the results will be set under separate cover upon completion.

Should you have any questions please do not hesitate to contact me at (916) 923-0840.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jill B. Henes".

Jill B. Henes, Ph.D.  
Vice-President of Technical Services

cc: File

**FEB 19 1991**

**R.A. STENZEL**



March 7, 1991

Bechtel Corporation  
50 Beale Street  
San Francisco, CA 94119

Attention: Mr. Russ Stenzel

Subject: Report of Additional Data - Case Number 7363

Dear Mr. Stenzel:

Enclosed you will find additional data sheets for the CL4-CL8, Method 8280 Analysis of CHEMWEST sample number 7363-5RX; your sample number DC4.

Project Number: 17282-003.

Sample CW#7363-5 was originally extracted and analyzed at 7.22g and reported to you on January 18, 1991. The analysis resulted in low internal standard recovery amounts. This sample has been re-extracted and re-analyzed at 2.04g with much improved internal standard recoveries. Due to the lower starting weight, however, some of the lower level hits reported previously were not present.

CHEMWEST apologizes for any inconveniences this may have caused you. Should you have any further questions please do not hesitate to contact me at (916)923-0840.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jill B. Henes".

Jill B. Henes, Ph.D.  
Vice-President of Technical Services

cc: File

MAR 11 1991

R.A. STENZEL

METHOD 8280

DATE: 02/06/91

PG.1

COLUMN: 60M X0.32MM ID, 0.25 UM FILM DB-5

INJ TIME: 11:28

CHEMIST \_\_\_\_\_

INSTRUMENT ID : CW-1

CHEMWEST ID: 7363-1RX

REVIEW    *h*   

CURVE: ST1910130D,C,E,F,G

SAMPLE ID: DC1

COMMENTS:

SAMPLE SIZE: 2.07 G

|                          | SCAN #         | AREA          | AREA*   | RATIO | RRF  | STD<br>AMT | AMT   | DL    |
|--------------------------|----------------|---------------|---------|-------|------|------------|-------|-------|
|                          |                |               | 74264   |       |      |            |       |       |
| 13C12-2378-TCDD I.S.     | 1028 (332)     | 180293 (334)  | 248007  | 0.73  | 1.24 | 25         | 11.82 | %     |
| 13C12-1234-TCDD R.S.     | 1019 (332)     | 1367330 (334) | 1692020 | 0.81  | 0    | 25         |       |       |
| 37CL4-2378-TCDD SUR.     | 1028           | (328)         | 144888  | -     | 0.87 | 10         | 97.20 | %     |
| 2378-TCDD                | 0 (320)        | 0 (322)       | 4128    | -     | 1.1  | 0          | 0     | 1.526 |
| TOTAL TCDD               | 0 (320)        | 0 (322)       | 4128    | -     | 1.1  | 0          | 0     | 1.526 |
|                          |                |               | 104048  |       |      |            |       |       |
| 13C12-12378-PeCDD I.S.   | 1269 (370)     | 238896 (368)  | 353520  | 0.68  | 0.9  | 25         | 23.21 | %     |
| TOTAL PeCDD              | 0 (358)        | 0 (356)       | 5920    | -     | 1.15 | 0          | 0     | 1.494 |
| 12378-PeCDD              | 0 (358)        | 0 (356)       | 5920    | -     | 1.15 | 0          | 0     | 1.494 |
|                          |                |               | 148320  |       |      |            |       |       |
| 13C12-123678-HxCDD I.S.  | 1504 (404)     | 454976 (402)  | 572128  | 0.80  | 0.72 | 25         | 46.96 | %     |
| 13C12-123678-HxCDD SURR. | 1526 (404)     | 603064 (402)  | 795248  | 0.76  | 1.13 | 25         | 123.0 | %     |
| TOTAL HxCDD              | 1409-1526(392) | 134552 (390)  | 198976  | 0.68  | 1.04 | 0          | 4.038 | -     |
| 123478-HxCDD             | 0 (392)        | 0 (390)       | 3304    | -     | 1.04 | 0          | 0     | 0.647 |
| 123678-HxCDD             | 1505 (392)     | 9648 (390)    | 14816   | 0.65  | 1.04 | 0          | 0.300 | - MP  |
| 123789-HxCDD             | 1525 (392)     | 21184 (390)   | 28320   | 0.75  | 1.04 | 0          | 0.574 | - MF  |
|                          |                |               | 145325  |       |      |            |       |       |
| 13C12-1234678-HpCDD I.S. | 1737 (438)     | 504064 (436)  | 526160  | 0.96  | 0.52 | 25         | 59.80 | %     |
| TOTAL HpCDD              | 1686-1737(426) | 148672 (424)  | 137696  | 1.08  | 1.09 | 0          | 2.899 | -     |
| 1234678-HpCDD            | 1737 (426)     | 59712 (424)   | 59904   | 1.00  | 1.09 | 0          | 1.261 | -     |
|                          |                |               | 262589  |       |      |            |       |       |
| 13C12-OCDD I.S.          | 1952 (470)     | 899392 (472)  | 1007390 | 0.89  | 0.38 | 100        | 39.16 | %     |
| OCDD                     | 1953 (458)     | 102624 (460)  | 105984  | 0.97  | 1.27 | 0          | 4.001 | -     |

METHOD 8280

DATE: 02/06/91

PG.2

COLUMN: 60M X0.32MM ID, 0.25 UM FILM DB-5

INJ TIME: 11:28

INSTRUMENT ID : CW-1

CHEMWEST ID: 7363-1RX

CURVE: ST1910130D,C,E,F,G

SAMPLE ID: DC1

COMMENTS:

SAMPLE SIZE: 2.07 G

|                         | SCAN #         | AREA         | AREA*  | RATIO | RRF  | STD<br>AMT | AMT   | DL    |
|-------------------------|----------------|--------------|--------|-------|------|------------|-------|-------|
|                         |                |              | 51136  |       |      |            |       |       |
| 13C12-2378-TCDF I.S.    | 994 (316)      | 144183 (318) | 180064 | 0.80  | 1.75 | 25         | 6.081 | %     |
| 2378-TCDF               | 0 (304)        | 0 (306)      | 6432   | -     | 1.11 | 0          | 0     | 3.421 |
| TOTAL TCDF              | 0 (304)        | 0 (306)      | 7616   | -     | 1.11 | 0          | 0     | 4.051 |
|                         |                |              | 201603 |       |      |            |       |       |
| 13C12-12378-PeCDF IS    | 1201 (354)     | 419976 (352) | 738432 | 0.57  | 1.24 | 25         | 35.19 | %     |
| TOTAL PeCDF             | 1202-1256(342) | 135247 (340) | 232390 | 0.58  | 1.26 | 0          | 3.016 | -     |
| 12378-PeCDF             | 1202 (342)     | 19744 (340)  | 44128  | 0.45  | 1.26 | 0          | 0.572 | -     |
| 23478-PeCDF             | 1247 (342)     | 31388 (340)  | 51968  | 0.60  | 1.26 | 0          | 0.674 | -     |
| TOTAL HxCDF             | 1370-1489(376) | 343744 (374) | 416000 | 0.83  | 1.59 | 0          | 5.522 | -     |
| 123478-HxCDF            | 1439 (376)     | 115968 (374) | 127264 | 0.91  | 1.59 | 0          | 1.689 | -     |
| 123678-HxCDF            | 1449 (376)     | 36640 (374)  | 53280  | 0.69  | 1.59 | 0          | 0.707 | -     |
| 234678-HxCDF            | 1489 (376)     | 84960 (374)  | 78272  | 1.09  | 1.59 | 0          | 1.039 | -     |
| 123789-HxCDF            | 0 (376)        | 0 (374)      | 7799   | -     | 1.59 | 0          | 0     | 0.999 |
| 13C12-1234678-HpCDF SUR | 1663 (422)     | 661664 (420) | 746112 | 0.89  | 1.63 | 25         | 86.99 | %     |
| TOTAL HpCDF             | 1663-1691(410) | 160600 (408) | 175496 | 0.92  | 1.53 | 0          | 2.632 | -     |
| 1234678-HpCDF           | 1664 (410)     | 125280 (408) | 125216 | 1.00  | 1.53 | 0          | 1.878 | -     |
| 1234789-HpCDF           | 0 (410)        | 0 (408)      | 5892   | -     | 1.53 | 0          | 0     | 0.800 |
| OCDF                    | 0 (442)        | 0 (444)      | 7424   | -     | 1.64 | 0          | 0     | 2.082 |



METHOD 8280

DATE: 02/06/91

PG.1

COLUMN: 60M X0.32MM ID, 0.25 UM FILM DB-5

INJ TIME: 12:04

CHEMIST \_\_\_\_\_

INSTRUMENT ID : CW-1

CHEMWEST ID: 7363-2RX

REVIEW   *JA*  

CURVE: ST1910130D,C,E,F,G

SAMPLE ID: DC2

COMMENTS:

SAMPLE SIZE: 1.99 G

|                          | SCAN #         | AREA          | AREA*   | RATIO | RRF  | STD<br>AMT | AMT   | DL    |
|--------------------------|----------------|---------------|---------|-------|------|------------|-------|-------|
|                          |                |               | 539930  |       |      |            |       |       |
| 13C12-2378-TCDD I.S.     | 1025 (332)     | 1401700 (334) | 1729470 | 0.81  | 1.24 | 25         | 74.53 | %     |
| 13C12-1234-TCDD R.S.     | 1016 (332)     | 1511400 (334) | 1871200 | 0.81  | 0    | 25         |       |       |
| 37CL4-2378-TCDD SUR.     | 1025           | (328)         | 1115110 | -     | 0.87 | 10         | 102.3 | %     |
| 2378-TCDD                | 0 (320)        | 0 (322)       | 9696    | -     | 1.1  | 0          | 0     | 0.513 |
| TOTAL TCDD               | 0 (320)        | 0 (322)       | 9696    | -     | 1.1  | 0          | 0     | 0.513 |
|                          |                |               | 356872  |       |      |            |       |       |
| 13C12-12378-PeCDD I.S.   | 1266 (370)     | 756096 (368)  | 1184260 | 0.64  | 0.9  | 25         | 70.32 | %     |
| TOTAL PeCDD              | 1157-1297(358) | 312992 (356)  | 338768  | 0.92  | 1.15 | 0          | 3.124 | -     |
| 12378-PeCDD              | 1267 (358)     | 35840 (356)   | 29592   | 1.21  | 1.15 | 0          | 0.272 | -     |
|                          |                |               | 302691  |       |      |            |       |       |
| 13C12-123678-HxCDD I.S.  | 1501 (404)     | 813568 (402)  | 1058160 | 0.77  | 0.72 | 25         | 78.54 | %     |
| 13C12-123678-HxCDD SURR. | 1523 (404)     | 899168 (402)  | 1150570 | 0.78  | 1.13 | 25         | 96.22 | %     |
| TOTAL HxCDD              | 1405-1522(392) | 486939 (390)  | 637904  | 0.76  | 1.04 | 0          | 7.282 | -     |
| 123478-HxCDD             | 1496 (392)     | 25091 (390)   | 24317   | 1.03  | 1.04 | 0          | 0.277 | -     |
| 123678-HxCDD             | 1502 (392)     | 34016 (390)   | 55443   | 0.61  | 1.04 | 0          | 0.632 | -     |
| 123789-HxCDD             | 1522 (392)     | 55288 (390)   | 81120   | 0.68  | 1.04 | 0          | 0.926 | -     |
|                          |                |               | 208165  |       |      |            |       |       |
| 13C12-1234678-HpCDD I.S. | 1733 (438)     | 690160 (436)  | 738976  | 0.93  | 0.52 | 25         | 75.94 | %     |
| TOTAL HpCDD              | 1682-1733(426) | 196176 (424)  | 256808  | 0.76  | 1.09 | 0          | 4.005 | -     |
| 1234678-HpCDD            | 1733 (426)     | 98768 (424)   | 153184  | 0.64  | 1.09 | 0          | 2.389 | -     |
|                          |                |               | 378744  |       |      |            |       |       |
| 13C12-OCDD I.S.          | 1947 (470)     | 1243510 (472) | 1396790 | 0.89  | 0.38 | 100        | 49.10 | %     |
| OCDD                     | 1948 (458)     | 37824 (460)   | 48512   | 0.78  | 1.27 | 0          | 1.374 | -     |

METHOD 8280

DATE: 02/06/91

PG.2

COLUMN: 60M X0.32MM ID, 0.25 UM FILM DB-5

INJ TIME: 12:04

INSTRUMENT ID : CW-1

CHEMWEST ID: 7363-2RX

CURVE: ST1910130D,C,E,F,G

SAMPLE ID: DC2

COMMENTS:

SAMPLE SIZE: 1.99 G

|                         | SCAN #         | AREA          | AREA*   | RATIO | RRF  | STD<br>AMT | AMT   | DL    |
|-------------------------|----------------|---------------|---------|-------|------|------------|-------|-------|
| <hr/>                   |                |               |         |       |      |            |       |       |
|                         |                |               | 859830  |       |      |            |       |       |
| 13C12-2378-TCDF 1.S.    | 991 (316)      | 2075960 (318) | 2610240 | 0.80  | 1.75 | 25         | 79.71 | %     |
| 2378-TCDF               | 992 (304)      | 304576 (306)  | 399352  | 0.76  | 1.11 | 0          | 1.731 | -     |
| TOTAL TCDF              | 935-1022(304)  | 771448 (306)  | 1001623 | 0.77  | 1.11 | 0          | 4.342 | -     |
|                         |                |               | 582509  |       |      |            |       |       |
| 13C12-12378-PeCDF 1S    | 1198 (354)     | 1216410 (352) | 1890100 | 0.64  | 1.24 | 25         | 81.45 | %     |
| TOTAL PeCDF             | 1087-1272(342) | 1529991 (340) | 2429680 | 0.63  | 1.26 | 0          | 12.81 | -     |
| 12378-PeCDF             | 1199 (342)     | 76155 (340)   | 118248  | 0.64  | 1.26 | 0          | 0.623 | -     |
| 23478-PeCDF             | 1244 (342)     | 317252 (340)  | 479680  | 0.66  | 1.26 | 0          | 2.530 | -     |
| TOTAL HxCDF             | 1367-1544(376) | 1172623 (374) | 1431728 | 0.82  | 1.59 | 0          | 10.69 | -     |
| 123478-HxCDF            | 1436 (376)     | 319601 (374)  | 418416  | 0.76  | 1.59 | 0          | 3.124 | -     |
| 123678-HxCDF            | 1445 (376)     | 120368 (374)  | 156896  | 0.77  | 1.59 | 0          | 1.171 | -     |
| 234678-HxCDF            | 1485 (376)     | 193680 (374)  | 239968  | 0.81  | 1.59 | 0          | 1.791 | -     |
| 123789-HxCDF            | 0 (376)        | 0 (374)       | 2592    | -     | 1.59 | 0          | 0     | 0.169 |
| 13C12-1234678-HpCDF SUR | 1659 (422)     | 955384 (420)  | 1036340 | 0.92  | 1.63 | 25         | 86.03 | %     |
| TOTAL HpCDF             | 1660-1688(410) | 373344 (408)  | 477535  | 0.78  | 1.53 | 0          | 5.306 | -     |
| 1234678-HpCDF           | 1660 (410)     | 283680 (408)  | 295568  | 0.96  | 1.53 | 0          | 3.284 | -     |
| 1234789-HpCDF           | 0 (410)        | 0 (408)       | 6480    | -     | 1.53 | 0          | 0     | 0.639 |
| OCDF                    | (442)          | (444)         | 10392   | -     | 1.64 | 0          | 0     | 2.102 |

METHOD 8280

DATE: 02/06/91

PG.1

COLUMN: 60M X0.32MM ID, 0.25 UM FILM DB-5

INJ TIME: 13:12

CHEMIST \_\_\_\_\_

INSTRUMENT ID : CW-1

CHEMWEST ID: 7363-3RX

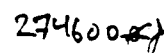
REVIEW 

CURVE: ST1910130D,C,E,F,G

SAMPLE ID: DC3

COMMENTS:

SAMPLE SIZE: 2.06 G

|                          | SCAN #         | AREA          | AREA*   | RATIO | RRF  | STD<br>AMT | AMT   | DL    |
|--------------------------|----------------|---------------|---|-------|------|------------|-------|-------|
|                          |                |               | 577530  |       |      |            |       |       |
| 13C12-2378-TCDD I.S.     | 1013 (332)     | 1446440 (334) | 1766980   | 0.82  | 1.24 | 25         | 72.28 | %     |
| 13C12-1234-TCDD R.S.     | 1004 (332)     | 1599270 (334) | 1971370   | 0.81  | 0    | 25         |       |       |
| 37CL4-2378-TCDD SUR.     | 1014           | (328)         | 1129980   | -     | 0.87 | 10         | 101.0 | %     |
| 2378-TCDD                | 0 (320)        | 0 (322)       | 9888  | -     | 1.1  | 0          | 0     | 0.472 |
| TOTAL TCDD               | 0 (320)        | 0 (322)       | 9888  | -     | 1.1  | 0          | 0     | 0.472 |
|                          |                |               | 347066  |       |      |            |       |       |
| 13C12-12378-PeCDD I.S.   | 1255 (370)     | 760240 (368)  | 1221440   | 0.62  | 0.9  | 25         | 68.84 | %     |
| TOTAL PeCDD              | 1145-1286(358) | 237401 (356)  | 298104  | 0.80  | 1.15 | 0          | 2.575 | -     |
| 12378-PeCDD              | 1256 (358)     | 23136 (356)   | 29304   | 0.79  | 1.15 | 0          | 0.253 | -     |
|                          |                |               | 274600  |       |      |            |       |       |
| 13C12-123678-HxCDD I.S.  | 1490 (404)     | 786880 (402)  | 1024320   | 0.77  | 0.72 | 25         | 72.16 | %     |
| 13C12-123678-HxCDD SURR. | 1512 (404)     | 869088 (402)  | 1137770   | 0.76  | 1.13 | 25         | 98.29 | %     |
| TOTAL HxCDD              | 1394-1510(392) | 251504 (390)  | 381287  | 0.66  | 1.04 | 0          | 4.343 | -     |
| 123478-HxCDD             | 1487 (392)     | 14996 (390)   | 19922   | 0.75  | 1.04 | 0          | 0.226 | -     |
| 123678-HxCDD             | 1491 (392)     | 17604 (390)   | 29312   | 0.60  | 1.04 | 0          | 0.333 | -     |
| 123789-HxCDD             | 1510 (392)     | 21568 (390)   | 41184   | 0.52  | 1.04 | 0          | 0.469 | -     |
|                          |                |               | 175528  |       |      |            |       |       |
| 13C12-1234678-HpCDD I.S. | 1722 (438)     | 662832 (436)  | 691224  | 0.96  | 0.52 | 25         | 67.42 | %     |
| TOTAL HpCDD              | 1671-1723(426) | 96416 (424)   | 106252  | 0.91  | 1.09 | 0          | 1.711 | -     |
| 1234678-HpCDD            | 1723 (426)     | 48576 (424)   | 54344   | 0.89  | 1.09 | 0          | 0.875 | -     |
|                          |                |               | 342930  |       |      |            |       |       |
| 13C12-OCDD I.S.          | 1937 (470)     | 1180410 (472) | 1287670   | 0.92  | 0.38 | 100        | 42.97 | %     |
| OCDD                     | 0 (458)        | 0 (460)       | 7776  | -     | 1.27 | 0          | 0     | 2.167 |

METHOD 8280

DATE: 02/06/91

PG.2

COLUMN: 60M X0.32MM ID, 0.25 UM FILM DB-5

INJ. TIME: 13:12

INSTRUMENT ID : CW-1

CHEMWEST ID: 7363-3RX

CURVE: ST1910130D,C,E,F,G

SAMPLE ID: DC3

COMMENTS:

SAMPLE SIZE: 2.06 G

|                         | SCAN #         | AREA          | AREA*   | RATIO | RRF  | STD<br>AMT | AMT   | DL          |
|-------------------------|----------------|---------------|---------|-------|------|------------|-------|-------------|
|                         |                |               | 856403  |       |      |            |       |             |
| 13C12-2378-TCDF I.S.    | 979 (316)      | 2101780 (318) | 2613730 | 0.80  | 1.75 | 25         | 75.76 | %           |
| 2378-TCDF               | 981 (304)      | 226224 (306)  | 302464  | 0.75  | 1.11 | 0          | 1.265 | -           |
| TOTAL TCDF              | 935-1010(304)  | 635040 (306)  | 817871  | 0.78  | 1.11 | 0          | 3.421 | -           |
|                         |                |               | 541558  |       |      |            |       |             |
| 13C12-12378-PeCDF IS    | 1186 (354)     | 1228070 (352) | 1977520 | 0.62  | 1.24 | 25         | 80.89 | %           |
| TOTAL PeCDF             | 1075-1241(342) | 933316 (340)  | 1894772 | 0.49  | 1.26 | 0          | 9.228 | -           |
| 12378-PeCDF             | 1187 (342)     | 51200 (340)   | 76363   | 0.67  | 1.26 | 0          | 0.371 | -           |
| 23478-PeCDF             | 1233 (342)     | 173734 (340)  | 271544  | 0.64  | 1.26 | 0          | 1.322 | -           |
| TOTAL HxCDF             | 1356-1474(376) | 512565 (374)  | 722256  | 0.71  | 1.59 | 0          | 5.381 | -           |
| 123478-HxCDF            | 1425 (376)     | 161840 (374)  | 220692  | 0.73  | 1.59 | 0          | 1.644 | -           |
| 123678-HxCDF            | 1834 (376)     | 58616 (374)   | 86828   | 0.68  | 1.59 | 0          | 0.646 | -           |
| 234678-HxCDF            | 1474 (376)     | 92976 (374)   | 101664  | 0.91  | 1.59 | 0          | 0.757 | -           |
| 123789-HxCDF            | 0 (376)        | 0 (374)       | 7072    | -     | 1.59 | 0          | 0     | 3.49<br>ERR |
| 13C12-1234678-HpCDF SUR | 1648 (422)     | 907200 (420)  | 1007800 | 0.90  | 1.63 | 25         | 89.44 | %           |
| TOTAL HpCDF             | 1649-1665(410) | 148704 (408)  | 161031  | 0.92  | 1.53 | 0          | 1.847 | -           |
| 1234678-HpCDF           | 1649 (410)     | 135544 (408)  | 123984  | 1.09  | 1.53 | 0          | 1.422 | -           |
| 1234789-HpCDF           | 0 (410)        | 0 (408)       | 5568    | -     | 1.53 | 0          | 0     | 0.629       |
| OCDF                    | 0 (442)        | 0 (444)       | 6048    | -     | 1.64 | 0          | 0     | 1.305       |

METHOD 8280

DATE: 03/04/01

PG.1

COLUMN: 60M X0.32MM ID, 0.25 UM FILM DB-5

INJ TIME: 16:23

CHEMIST

INSTRUMENT ID : CW-1

CHEMWEST ID: 7363-5RX

REVIEW

CURVE: ST1910304E,D,F,G,H

SAMPLE ID: DC4

COMMENTS:

SAMPLE SIZE: 2.04 G

|                          | SCAN #         | AREA          | AREA*   | RATIO | RRF  | STD AMT | AMT   | DL    |
|--------------------------|----------------|---------------|---------|-------|------|---------|-------|-------|
|                          |                |               | 376664  |       |      |         |       |       |
| 13C12-2378-TCDD I.S.     | 1081 (332)     | 958660 (334)  | 1165920 | 0.82  | 1.23 | 25      | 72.81 | %     |
| 13C12-1234-TCDD R.S.     | 1072 (332)     | 1028850 (334) | 1301870 | 0.79  | 0    | 25      |       |       |
| 37CL4-2378-TCDD SUR.     | 1082           | (328)         | 707008  | -     | 0.86 | 10      | 96.73 | %     |
| 2378-TCDD                | 0 (320)        | 0 (322)       | 7072    | -     | 1.07 | 0       | 0     | 0.538 |
| TOTAL TCDD               | 0 (320)        | 0 (322)       | 7072    | -     | 1.07 | 0       | 0     | 0.538 |
|                          |                |               | 284723  |       |      |         |       |       |
| 13C12-12378-PeCDD I.S.   | 1325 (370)     | 606199 (368)  | 966136  | 0.63  | 0.96 | 25      | 77.30 | %     |
| TOTAL PeCDD              | 1215-1277(358) | 72192 (356)   | 107080  | 0.67  | 1.16 | 0       | 1.170 | -     |
| 12378-PeCDD              | 0 (358)        | 0 (356)       | 5696    | -     | 1.16 | 0       | 0     | 0.528 |
|                          |                |               | 204730  |       |      |         |       |       |
| 13C12-123678-HxCDD I.S.  | 1561 (404)     | 644288 (402)  | 783808  | 0.82  | 0.75 | 25      | 80.27 | %     |
| 13C12-123678-HxCDD SURR. | 1583 (404)     | 761840 (402)  | 911664  | 0.84  | 1.16 | 25      | 100.2 | %     |
| TOTAL HxCDD              | 1464-1583(392) | 187520 (390)  | 271652  | 0.69  | 1.05 | 0       | 4.045 | -     |
| 123478-HxCDD             | 0 (392)        | 0 (390)       | 2356    | -     | 1.05 | 0       | 0     | 0.336 |
| 123678-HxCDD             | 1563 (392)     | 24576 (390)   | 27038   | 0.91  | 1.05 | 0       | 0.402 | -     |
| 123789-HxCDD             | 1583 (392)     | 31392 (390)   | 31312   | 1.00  | 1.05 | 0       | 0.466 | -     |
|                          |                |               | 152454  |       |      |         |       |       |
| 13C12-1234678-HpCDD I.S. | 1798 (438)     | 586984 (436)  | 618864  | 0.95  | 0.57 | 25      | 83.39 | %     |
| TOTAL HpCDD              | 1746-1799(426) | 83752 (424)   | 95776   | 0.87  | 1.07 | 0       | 1.772 | -     |
| 1234678-HpCDD            | 1799 (426)     | 31904 (424)   | 44624   | 0.71  | 1.07 | 0       | 0.825 | -     |
|                          |                |               | 341025  |       |      |         |       |       |
| 13C12-OCDD I.S.          | 2018 (470)     | 1196730 (472) | 1347540 | 0.89  | 0.42 | 100     | 61.61 | %     |
| OCDD                     | 0 (458)        | 0 (460)       | 7936    | -     | 1.27 | 0       | 0     | 2.246 |

METHOD 8280

DATE: 03/04/91

PG.2

COLUMN: 60M X0.32MM ID, 0.25 UM FILM DB-5

INJ TIME: 16:23

INSTRUMENT ID : CW-1

CHEMWEST ID: 7363-5RX

CURVE: ST1910304E,D,F,G,H

SAMPLE ID: DC4

COMMENTS:

SAMPLE SIZE: 2.04 G

|                         | SCAN #         | AREA                  | AREA*            | RATIO | RRF  | STD<br>AMT | AMT           | DL    |
|-------------------------|----------------|-----------------------|------------------|-------|------|------------|---------------|-------|
|                         |                |                       | 510494           |       |      |            |               |       |
| 13C12-2378-TCDF I.S.    | 1046 (316)     | 1341020 (318)         | 1674860          | 0.80  | 1.82 | 25         | 70.68         | \$    |
| 2378-TCDF               | 1048 (304)     | 168352 (306)          | 220416           | 0.76  | 1.12 | 0          | 1.439         | -     |
| TOTAL TCDF              | 1011-1078(304) | 383332 (306)          | 514640           | 0.74  | 1.12 | 0          | 3.362         | -     |
|                         |                |                       | 416229           |       |      |            |               |       |
| 13C12-12378-PeCDF IS    | 1258 (354)     | 865686 (352)          | 1376760          | 0.63  | 1.31 | 25         | 80.72         | \$    |
| TOTAL PeCDF             | 1146-1312(342) | 698849<br>35956 (340) | 1054336<br>53267 | 0.68  | 1.29 | 0          | 7.28<br>0.367 | -     |
| 12378-PeCDF             | 1259 (342)     | 35956 (340)           | 53267            | 0.68  | 1.29 | 0          | 0.367         | -     |
| 23478-PeCDF             | 1303 (342)     | 125144 (340)          | 199968           | 0.63  | 1.29 | 0          | 1.379         | -     |
| TOTAL HxCDF             | 1426-1606(376) | 412512 (374)          | 555335           | 0.74  | 1.7  | 0          | 5.107         | -     |
| 123478-HxCDF            | 1496 (376)     | 148192 (374)          | 178487           | 0.83  | 1.7  | 0          | 1.641         | -     |
| 123678-HxCDF            | 1506 (376)     | 47016 (374)           | 57056            | 0.82  | 1.7  | 0          | 0.524         | -     |
| 234678-HxCDF            | 1545 (376)     | 60904 (374)           | 110592           | 0.55  | 1.7  | 0          | 1.017         | -     |
| 123789-HxCDF            | 0 (376)        | 0 (374)               | 4000             | -     | 1.7  | 0          | 0             | 0.352 |
| 13C12-1234678-HpCDF SUR | 1722 (422)     | 1014940 (420)         | 1079080          | 0.94  | 1.56 | 25         | 111.7         | \$    |
| TOTAL HpCDF             | 1723 (410)     | 98160 (408)           | 117040           | 0.84  | 1.48 | 0          | 1.565         | -     |
| 1234678-HpCDF           | 1723 (410)     | 98160 (408)           | 117040           | 0.84  | 1.48 | 0          | 1.565         | -     |
| 1234789-HpCDF           | 0 (410)        | 0 (408)               | 3822             | -     | 1.48 | 0          | 0             | 0.519 |
| OCDF                    | 0 (442)        | 0 (444)               | 6176             | -     | 1.66 | 0          | 0             | 1.337 |



# CHAIN OF CUSTODY RECORD

BECHTEL PROJECT NO. 17282-003SAMPLER'S NAME J. Gilbreath

LABORATORY PROJECT NO. \_\_\_\_\_

SAMPLER'S SIGNATURE Jack GilbreathSITE IDENTIFICATION GE StanfordBECHTEL SUPERVISOR Russ StenzelDATE 12/20/90

| SAMPLE ID NUMBER  | MATRIX OF SAMPLE | TIME TAKEN        | PRESERVATIVES | ARCHIVE | ANALYZE                    | REMARKS      |
|---|------------------|-------------------|---------------|---------|----------------------------|--------------|
| DC 1  | Saw Dust         | 12/20/90<br>10:30 |               | ✓       | EPA<br>8280                | 2 containers |
| DC 2  | Saw Dust         | 12/20/90<br>11:30 |               | ✓       | EPA<br>8280                | 2 containers |
| DC 3  | Saw Dust         | 12/20/90<br>1:20  |               | ✓       | EPA<br>8280                | 2 containers |
| JG1   | Saw Dust         | 12/20/90<br>1:25  |               | ✓       | Hold                       | 1 container  |
| DC4   | Saw Dust         | 12/20/90<br>1:50  |               | ✓       | EPA<br>8280                | 2 containers |
| JG2   | Saw Dust         | 12/20/90<br>1:55  |               | ✓       | Hold                       | 1 container  |
| CS1   | concrete         | 12/21/90<br>10:00 |               | ✓       | EPA<br>8120                | Crush        |
| CS2   | concrete         | 12/21/90<br>10:30 |               | ✓       | EPA<br>8120                | Crush        |
| CS3   | concrete         | 12/21/90<br>10:45 |               | ✓       | EPA<br>8120<br>P.P. metals | Crush        |
| SAMPLES REC'D IN GOOD CONDITION<br>NO LEAKAGE OR BREAKAGE |                  |                   |               |         |                            |              |

RELINQUISHED BY J. GilbreathDATE/TIME 12/21/90

RECEIVED BY \_\_\_\_\_

RELINQUISHED BY \_\_\_\_\_

DATE/TIME \_\_\_\_\_

RECEIVED BY \_\_\_\_\_

RELINQUISHED BY \_\_\_\_\_

DATE/TIME \_\_\_\_\_

RECEIVED BY \_\_\_\_\_

RECEIVED BY Bill McBenge (BILL MCBENGE)

FOR LABORATORY.

DATE/TIME 12/26/90 09:20

AUTHORIZED FOR DISPOSAL BY \_\_\_\_\_

TYPE OF DISPOSAL \_\_\_\_\_

RELINQUISHED TO \_\_\_\_\_

FOR DISPOSAL.

DATE/TIME \_\_\_\_\_

## Appendix C

### TCDD Equivalents Calculations



# USEPA TCDD-EQUIVALENCE CALCULATIONS FOR GE-STANFORD

|            | Concentrations On Site (ug/kg) |      |      |      | I-TEF | USEPA/I-TEF<br>2378-TCDD Equivalents |      |      |      |
|------------|--------------------------------|------|------|------|-------|--------------------------------------|------|------|------|
|            | DC1                            | DC2  | DC3  | DC4  |       | DC1                                  | DC2  | DC3  | DC4  |
| 2378TCDD   | 1.50                           | 0.50 | 0.47 | 0.54 | 1.00  | 1.50                                 | 0.50 | 0.47 | 0.54 |
| TCDD       | ND                             | ND   | ND   | ND   |       | 0.00                                 | 0.00 | 0.00 | 0.00 |
| PeCDD      | 1.50                           | 0.27 | 0.25 | 0.53 | 0.50  | 0.75                                 | 0.14 | 0.13 | 0.27 |
| HxCDD      | 1.50                           | 1.80 | 1.03 | 1.20 | 0.10  | 0.15                                 | 0.18 | 0.10 | 0.12 |
| HpCDD      | 1.30                           | 2.40 | 2.58 | 0.83 | 0.01  | 0.01                                 | 0.02 | 0.03 | 0.01 |
| OCDD       | 4.00                           | 1.40 | 2.10 | 2.20 | 0.00  | 0.00                                 | 0.00 | 0.00 | 0.00 |
| 2378TCDF   | 3.40                           | 1.70 | 1.30 | 1.44 | 0.10  | 0.34                                 | 0.17 | 0.13 | 0.14 |
| TCDF       | 0.58                           | 4.30 | 3.40 | ND   |       | 0.00                                 | 0.00 | 0.00 | 0.00 |
| 23478PeCDF | 0.67                           | 2.50 | 1.30 | 1.38 | 0.50  | 0.34                                 | 1.25 | 0.65 | 0.69 |
| 12378PeCDF | 0.57                           | 0.62 | 0.37 | 0.37 | 0.05  | 0.03                                 | 0.03 | 0.02 | 0.02 |
| HxCDF      | 4.50                           | 6.30 | 3.54 | 3.53 | 0.10  | 0.45                                 | 0.63 | 0.35 | 0.35 |
| HpCDF      | 2.70                           | 3.90 | 2.05 | 2.09 | 0.01  | 0.03                                 | 0.04 | 0.02 | 0.02 |
| OCDF       | 2.10                           | 2.10 | 1.30 | 1.30 | 0.00  | 0.00                                 | 0.00 | 0.00 | 0.00 |
| TOTAL      |                                |      |      |      |       | 3.60                                 | 2.96 | 1.90 | 2.16 |

CA DHS TCDD-EQUIVALENCE CALCULATIONS FOR GE-STANFORD

|            | Concentrations On Site (ug/kg) |      |      |      | CA DHS<br>I-TEF | California DHS<br>2378-TCDD Equivalents |      |      |      |
|------------|--------------------------------|------|------|------|-----------------|---|------|------|------|
|            | DC1                            | DC2  | DC3  | DC4  |                 | DC1                                     | DC2  | DC3  | DC4  |
| 2378TCDD   | 1.50                           | 0.50 | 0.47 | 0.54 | 1.00            | 1.50                                    | 0.50 | 0.47 | 0.54 |
| TCDD       | ND                             | ND   | ND   | ND   | 0.00            | 0.00                                    | 0.00 | 0.00 | 0.00 |
| PeCDD      | 1.50                           | 0.27 | 0.25 | 0.53 | 1.00            | 1.50                                    | 0.27 | 0.25 | 0.53 |
| HxCDD      | 1.50                           | 1.80 | 1.03 | 1.20 | 0.03            | 0.05                                    | 0.05 | 0.03 | 0.04 |
| HpCDD      | 1.30                           | 2.40 | 2.58 | 0.83 | 0.03            | 0.04                                    | 0.07 | 0.08 | 0.02 |
| OCDD       | 4.00                           | 1.40 | 2.10 | 2.20 | 0.00            | 0.00                                    | 0.00 | 0.00 | 0.00 |
| 2378TCDF   | 3.40                           | 1.70 | 1.30 | 1.44 | 1.00            | 3.40                                    | 1.70 | 1.30 | 1.44 |
| TCDF       | 0.58                           | 4.30 | 3.40 | ND   | 0.00            | 0.00                                    | 0.00 | 0.00 | 0.00 |
| 23478PeCDF | 0.67                           | 2.50 | 1.30 | 1.38 | 1.00            | 0.67                                    | 2.50 | 1.30 | 1.38 |
| 12378PeCDF | 0.57                           | 0.62 | 0.37 | 0.37 | 1.00            | 0.57                                    | 0.62 | 0.37 | 0.37 |
| HxCDF      | 4.50                           | 6.30 | 3.54 | 3.53 | 0.03            | 0.13                                    | 0.19 | 0.11 | 0.11 |
| HpCDF      | 2.70                           | 3.90 | 2.05 | 2.09 | 0.03            | 0.08                                    | 0.12 | 0.06 | 0.06 |
| OCDF       | 2.10                           | 2.10 | 1.30 | 1.30 | 0.00            | 0.00                                    | 0.00 | 0.00 | 0.00 |
| TOTAL      |                                |      |      |      |                 | 7.94                                    | 6.02 | 3.97 | 4.49 |

## **Appendix D**

### **Waste Classification and Certification**

## WASTE CLASSIFICATION FORM

1. Name and Address of Waste Facility.

a. Mailing address.

General Electric Company  
275 Battery Street, 23rd Floor  
San Francisco, CA 94111

b. Location at which waste is generated, if different from above.

6900 Stanford Avenue  
Los Angeles, CA

c. Contact person and phone number.

Jack Gilbraith, Agent  
(510) 256-6110 ext. 405

2. Description of Waste:

a. Physical description.

Wood Planking

b. Quantities produced per unit time.

3.6 cubic yards - one time only

c. Process used to generate waste.

unknown

d. Present method of waste disposal.

None, wood remains part of building structure.

3. Sampling Information:

a. Name and address of company that sampled the waste.

Bechtel Environmental, Inc.  
50 Beale Street

(rev: FO3 9/83) San Francisco, CA 94119

- b. Name of person(s) who sampled the waste.  
Jack Gilbraith  
Richard Morales

- c. Dates and locations of collected samples:

| TYPE OF<br>SAMPLE COLLECTED | LOCATION                             | DATE<br>COLLECTED | FIELD<br>SAMPLE NO. |
|-----------------------------|--------------------------------------|-------------------|---------------------|
| Saw Dust                    | see Figure 2-1 of<br>attached report | 12/20/91          | DC1                 |
| Saw Dust                    | "                                    | 12/20/91          | DC2                 |
| Saw Dust                    | "                                    | 12/20/91          | DC3                 |
| Saw Dust                    | "                                    | 12/20/91          | DC4                 |

- d. Description of sampling methodology:

- (1) Sampling technique at site or facility.  
See Section 2.1 of attached document

- (2) Sample handling and preservation prior to laboratory analysis.  
Samples held in pre-cleaned 4 oz. wide mouth glass jars  
equipped with teflon lin lids  
  
Samples were cooled to 4°C.

4. Testing Laboratories Information:

a. Name and address of laboratories:

CompuChem  
Chemwest Analytical Laboratories, Inc.  
600 W. North Market Street  
Sacramento, CA 95834  
State Certificate No. 185, EPA-SAS Dioxin Contract Program

b. Test methods and references:

| SPECIFIC TEST                       | METHOD *        | REFERENCE        |
|-------------------------------------|-----------------|------------------|
| 1. Organic Analysis                 |                 |                  |
| - Chlorinated Pesticides            |                 |                  |
| - Polychlorinated Biphenyls         | EPA Method 8080 | SW 846, EPA 1982 |
| - Chlorophenoxy Acid Pesticides     |                 |                  |
| - Nitroaromatics                    |                 |                  |
| - Organophosphorus Pesticides       |                 |                  |
| - Phenols                           |                 |                  |
| - Polynuclear Aromatic Hydrocarbons |                 |                  |
| - Priority Pollutants               |                 |                  |
| - Volatile Organics                 |                 |                  |
| - Carbamates                        |                 |                  |
| - Other (specify) Dioxin/Furan      | EPA Method 8280 | SW 846, EPA 1982 |
| 2. Inorganic Analysis, Metallic     |                 |                  |
| - Antimony                          |                 |                  |
| - Arsenic                           |                 |                  |
| - Barium                            |                 |                  |
| - Beryllium                         |                 |                  |
| - Cadmium                           |                 |                  |
| - Chromium (VI)                     |                 |                  |
| - Chromium (total)                  |                 |                  |
| - Cobalt                            |                 |                  |

| SPECIFIC TEST                            | METHOD *          | REFERENCE |
|--|-------------------|-----------|
| Inorganic Analysis, Metallic (continued) |                   |           |
| - Copper                                 |                   |           |
| - Lead, inorganic                        |                   |           |
| - Lead, organic                          |                   |           |
| - Mercury                                |                   |           |
| - Molybdenum                             |                   |           |
| - Nickel                                 |                   |           |
| - Selenium                               |                   |           |
| - Silver                                 |                   |           |
| - Thallium                               |                   |           |
| - Vanadium                               |                   |           |
| - Zinc                                   |                   |           |
| - Other (Specify)                        |                   |           |
| 3. Inorganic Analysis, Non-Metallic      |                   |           |
| - Total cyanide                          |                   |           |
| - Cyanide (chlorination)                 |                   |           |
| - Fluoride                               |                   |           |
| - Sulfide                                |                   |           |
| - Asbestos                               |                   |           |
| - pH                                     |                   |           |
| - Free liquids                           |                   |           |
| - Other (specify)                        |                   |           |
| 4. Special Tests                         |                   |           |
| - California Waste Extraction Test       | Sec. 66700        |           |
| - Tests for Hazardous Properties         |                   |           |
| - Aquatic 96 hr LC <sub>50</sub>         |                   |           |
| - Flashpoint                             |                   |           |
| - Corrosivity                            |                   |           |
| - Head Space                             | Sec. 66696(a)(10) |           |
| - Other (specify)                        |                   |           |

\* If this is not a standard method (APHA-AWWA-WPCF, ASTM, AOAC, EPA, etc) please attach a copy of method with this report.

- c. Names and qualifications of persons testing waste.  
Jill B. Hanes, PhD, Vice President of Technical Services  
Elaine Wong, GC/MS Manager  
CompuChem  
Chemwest Analytical Laboratories, Inc.  
600 W. North Market Blvd.  
Sacramento, CA 95834

*See Resumes in Chemwest Quality Assurance  
Program Plan (Attached)*

- d. Preparation of laboratory samples from field samples.  
See EPA Method 8280, SW846, Third Edition 1986  
Section 9

- e. Sample identification information:

| TYPE OF<br>SAMPLE TESTED | FIELD<br>SAMPLE NO(S) | LABORATORY<br>SAMPLE NO. | DATE<br>TESTED |
|--------------------------|-----------------------|--------------------------|----------------|
| Saw Dust                 | DC1                   | 7363-1RX                 | 2/06/91        |
| Saw Dust                 | DC2                   | 7363-2RX                 | 2/06/91        |
| Saw Dust                 | DC3                   | 7363-3RX                 | 2/06/91        |
| Saw Dust                 | DC4                   | 7363-5RX                 | 3/04/91        |
|                          |                       |                          |                |
|                          |                       |                          |                |
|                          |                       |                          |                |
|                          |                       |                          |                |
|                          |                       |                          |                |
|                          |                       |                          |                |
|                          |                       |                          |                |
|                          |                       |                          |                |
|                          |                       |                          |                |



5. Quality Assurance and Controls: (See Appendix 1)
- a. On file with the DOHS Hazardous Materials Laboratory;  
yes.        no
  - b. Enclosed; yes   X   no       ; attached document
  - c. Will be forwarded to DOHS by                                 ;
6. Laboratory Results
- a. Waste Components and California Waste Extraction Test Summary (Form 1).
  - b. Aquatic Bioassay. Use California Department of Fish Bioassay Data Sheet.
  - c. Submission of Data and Reports (See Appendix 1).
7. Acute toxicity calculations from published data: (Form 2)
8. Corrosivity, Flammability, Reactivity (Form 3)
9. References (Attach complete citations)
10. Certification by person(s) who is the responsible manager of the facility.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this notification and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signature

Jack J. Gilbraith

Date

9/11/91

Printed Name

Jack J. Gilbraith

Title

Agent

## FORM 1

## WASTE COMPONENT AND WASTE EXTRACTION TEST SUMMARY

Laboratory Sample # 7363-1RXDate Analyzed 2/06/91Type of Sample Tested Sawdust

## I. Chemical Analyses and Extractions

| Waste Component                   | Total Concentration (mg/kg) | California Extraction Test (mg/l) |
|-----------------------------------|-----------------------------|-----------------------------------|
| Inorganic Analysis:               |                             |                                   |
| Antimony                          |                             |                                   |
| Arsenic                           |                             |                                   |
| Barium                            |                             |                                   |
| Beryllium                         |                             |                                   |
| Cadmium                           |                             |                                   |
| Chromium (III)                    |                             |                                   |
| Chromium (VI)                     |                             |                                   |
| Cobalt                            |                             |                                   |
| Copper                            |                             |                                   |
| Fluoride                          |                             |                                   |
| Lead                              |                             |                                   |
| Mercury                           |                             |                                   |
| Molybdenum                        |                             |                                   |
| Nickel                            |                             |                                   |
| Selenium                          |                             |                                   |
| Silver                            |                             |                                   |
| Thallium                          |                             |                                   |
| Vanadium                          |                             |                                   |
| Zinc                              |                             |                                   |
| Organic Analysis:                 |                             |                                   |
| Chlorinated Pesticides            |                             |                                   |
| Polychlorinated Biphenyls         |                             |                                   |
| Chlorophenoxy Acid Pesticides     |                             |                                   |
| Nitroaromatics                    |                             |                                   |
| Organophosphorus Pesticides       |                             |                                   |
| Phenols                           |                             |                                   |
| Polynuclear Aromatic Hydrocarbons |                             |                                   |
| Priority Pollutants               |                             |                                   |
| Volatile Organics                 |                             |                                   |
| Carbamates                        |                             |                                   |
| Other (Specify) Dioxin            | < 0.0015                    |                                   |
| pH                                | Not Applicable              |                                   |
| TCDD equiv.                       | < 0.0036                    |                                   |

## II. Bioassay

See Section 3.2 of attached document

Concentration (mg/l)

96-hr LC<sub>50</sub> for Waste

## III. Head Space Vapor Concentration

Not applicable to waste

| Component | Molecular weight | Weight of component in syringe (mg) | Head space vapor concentration |
|-----------|------------------|-------------------------------------|--------------------------------|
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |

$$(CA) = \frac{(QA) (R)}{(MW) (G)}$$

where (QA) = quantity of component in head space vapor (mg)

(MW) = molecular weight (mg/mmol)

(R) = 24.5 ml/mmol

(G) =  $2 \times 10^{-6} \text{ M}^3$

(CA) = Head space vapor concentration (ppm)

## FORM 1

## WASTE COMPONENT AND WASTE EXTRACTION TEST SUMMARY

Laboratory Sample # 7363-2RXDate Analyzed 2/06/91Type of Sample Tested Sawdust

## I. Chemical Analyses and Extractions

| Waste Component                   | Total Concentration (mg/kg) | California Extraction Test (mg/l) |
|-----------------------------------|-----------------------------|-----------------------------------|
| Inorganic Analysis:               |                             |                                   |
| Antimony                          |                             |                                   |
| Arsenic                           |                             |                                   |
| Barium                            |                             |                                   |
| Beryllium                         |                             |                                   |
| Cadmium                           |                             |                                   |
| Chromium (III)                    |                             |                                   |
| Chromium (VI)                     |                             |                                   |
| Cobalt                            |                             |                                   |
| Copper                            |                             |                                   |
| Fluoride                          |                             |                                   |
| Lead                              |                             |                                   |
| Mercury                           |                             |                                   |
| Molybdenum                        |                             |                                   |
| Nickel                            |                             |                                   |
| Selenium                          |                             |                                   |
| Silver                            |                             |                                   |
| Thallium                          |                             |                                   |
| Vanadium                          |                             |                                   |
| Zinc                              |                             |                                   |
| Organic Analysis:                 |                             |                                   |
| Chlorinated Pesticides            |                             |                                   |
| Polychlorinated Biphenyls         |                             |                                   |
| Chlorophenoxy Acid Pesticides     |                             |                                   |
| Nitroaromatics                    |                             |                                   |
| Organophosphorus Pesticides       |                             |                                   |
| Phenols                           |                             |                                   |
| Polynuclear Aromatic Hydrocarbons |                             |                                   |
| Priority Pollutants               |                             |                                   |
| Volatile Organics                 |                             |                                   |
| Carbamates                        |                             |                                   |
| Other (Specify) Dioxin            | < 0.0005                    |                                   |
| pH                                | Not Applicable              |                                   |
| TCDD equiv.                       | < 0.003                     |                                   |

## II. Bioassay

See Section 3.2 of attached document

Concentration (mg/l)

96-hr  $LC_{50}$  for Waste

## III. Head Space Vapor Concentration

Not applicable to waste

| Component | Molecular weight | Weight of component in syringe (mg) | Head space vapor concentration |
|-----------|------------------|-------------------------------------|--------------------------------|
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |

$$(CA) = \frac{(QA) (R)}{(MW) (G)}$$

where (QA) = quantity of component in head space vapor (mg)

(MW) = molecular weight (mg/mmmole)

(R) = 24.5 ml/mmmole

(G) =  $2 \times 10^{-6} M^3$

(CA) = Head space vapor concentration (ppm)

## FORM 1

## WASTE COMPONENT AND WASTE EXTRACTION TEST SUMMARY

Laboratory Sample # 7363-3RXDate Analyzed 2/06/91Type of Sample Tested Sawdust

## I. Chemical Analyses and Extractions

| Waste Component                   | Total Concentration (mg/kg) | California Extraction Test (mg/l) |
|-----------------------------------|-----------------------------|-----------------------------------|
| Inorganic Analysis:               |                             |                                   |
| Antimony                          |                             |                                   |
| Arsenic                           |                             |                                   |
| Barium                            |                             |                                   |
| Beryllium                         |                             |                                   |
| Cadmium                           |                             |                                   |
| Chromium (III)                    |                             |                                   |
| Chromium (VI)                     |                             |                                   |
| Cobalt                            |                             |                                   |
| Copper                            |                             |                                   |
| Fluoride                          |                             |                                   |
| Lead                              |                             |                                   |
| Mercury                           |                             |                                   |
| Molybdenum                        |                             |                                   |
| Nickel                            |                             |                                   |
| Selenium                          |                             |                                   |
| Silver                            |                             |                                   |
| Thallium                          |                             |                                   |
| Vanadium                          |                             |                                   |
| Zinc                              |                             |                                   |
| Organic Analysis:                 |                             |                                   |
| Chlorinated Pesticides            |                             |                                   |
| Polychlorinated Biphenyls         |                             |                                   |
| Chlorophenoxy Acid Pesticides     |                             |                                   |
| Nitroaromatics                    |                             |                                   |
| Organophosphorus Pesticides       |                             |                                   |
| Phenols                           |                             |                                   |
| Polynuclear Aromatic Hydrocarbons |                             |                                   |
| Priority Pollutants               |                             |                                   |
| Volatile Organics                 |                             |                                   |
| Carbamates                        |                             |                                   |
| Other (Specify) Dioxin            | < 0.0005                    |                                   |
| pH                                | Not Applicable              |                                   |
| TCDD equiv.                       | < 0.0019                    |                                   |

## II. Bioassay

See Section 3.2 of attached document

Concentration (mg/l)

96-hr  $LC_{50}$  for Waste

## III. Head Space Vapor Concentration

Not applicable to waste

| Component | Molecular weight | Weight of component in syringe (mg) | Head space vapor concentration |
|-----------|------------------|-------------------------------------|--------------------------------|
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |

$$(CA) = \frac{(QA) (R)}{(MW) (G)}$$

where (QA) = quantity of component in head space vapor (mg)

(MW) = molecular weight (mg/mmole)

(R) = 24.5 ml/mmole

(G) =  $2 \times 10^{-6} M^3$

(CA) = Head space vapor concentration (ppm)

## FORM 1

## WASTE COMPONENT AND WASTE EXTRACTION TEST SUMMARY

Laboratory Sample # 7363-5RXDate Analyzed 3/04/91Type of Sample Tested Sawdust

## I. Chemical Analyses and Extractions

| Waste Component                   | Total Concentration (mg/kg) | California Extraction Test (mg/l) |
|-----------------------------------|-----------------------------|-----------------------------------|
| Inorganic Analysis:               |                             |                                   |
| Antimony                          |                             |                                   |
| Arsenic                           |                             |                                   |
| Barium                            |                             |                                   |
| Beryllium                         |                             |                                   |
| Cadmium                           |                             |                                   |
| Chromium (III)                    |                             |                                   |
| Chromium (VI)                     |                             |                                   |
| Cobalt                            |                             |                                   |
| Copper                            |                             |                                   |
| Fluoride                          |                             |                                   |
| Lead                              |                             |                                   |
| Mercury                           |                             |                                   |
| Molybdenum                        |                             |                                   |
| Nickel                            |                             |                                   |
| Selenium                          |                             |                                   |
| Silver                            |                             |                                   |
| Thallium                          |                             |                                   |
| Vanadium                          |                             |                                   |
| Zinc                              |                             |                                   |
| Organic Analysis:                 |                             |                                   |
| Chlorinated Pesticides            |                             |                                   |
| Polychlorinated Biphenyls         | 19                          |                                   |
| Chlorophenoxy Acid Pesticides     |                             |                                   |
| Nitroaromatics                    |                             |                                   |
| Organophosphorus Pesticides       |                             |                                   |
| Phenols                           |                             |                                   |
| Polynuclear Aromatic Hydrocarbons |                             |                                   |
| Priority Pollutants               |                             |                                   |
| Volatile Organics                 |                             |                                   |
| Carbamates                        |                             |                                   |
| Other (Specify) Dioxin            | < 0.00054                   |                                   |
| pH                                | Not Applicable              |                                   |
| TCDD equiv.                       | < 0.0021                    |                                   |



## II. Bioassay

See Section 3.2 of attached document

Concentration (mg/l)

96-hr LC<sub>50</sub> for Waste

## III. Head Space Vapor Concentration

Not applicable to waste

| Component | Molecular weight | Weight of component in syringe (mg) | Head space vapor concentration |
|-----------|------------------|-------------------------------------|--------------------------------|
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |
|           |                  |                                     |                                |

$$(CA) = \frac{(QA) (R)}{(MW) (G)}$$

where (QA) = quantity of component in head space vapor (mg)

(MW) = molecular weight (mg/mole)

(R) = 24.5 ml/mole

(G) =  $2 \times 10^{-6} \text{ M}^3$

(CA) = Head space vapor concentration (ppm)

### ACUTE TOXICITY CALCULATIONS<sup>(b)</sup>

[illegible]

**SUM** \_\_\_\_\_

**CALCULATED TOXICITY** \_\_\_\_\_

## CALCULATIONS SUMMARY

### NOTE:

(a) Average or most reliable values listed for individual compounds.

$$(b) \text{ Calculated } LD_{50} = \frac{100}{\text{Sum } \% A_x} LD_{50 A_x}$$

where  $LD_{50 A_x}$  =  $LD_{50}$ 's of the pure toxic constituents  $A_1, A_2, A_3$

$\% A_x$  = concentration by weight in the waste (total ppm/10,000)

## FORM 3

## CORROSIVITY, FLAMMABILITY, REACTIVITY OF WASTE

| Parameter   | Experimental data or certification by chemist <sup>@</sup> | Reference <sup>#</sup> |
|---|--|------------------------|
| Corrosivity   |  |                        |
| - pH* 0% dilution   | N  | see item 4b            |
| - pH* 50% dilution  | N  | see item 4b            |
| - corrosion rate* (mm/yr)   | N  | see item 4b            |
| Flammability  |  |                        |
| - Flash point* (°C)   | X  | see item 4b            |
| - Causes fire   | N  |                        |
| - Flammable gas   | N  |                        |
| - Flammable solid   | N  |                        |
| - Oxidizer  | N  |                        |
| Reactivity  |  |                        |
| - Unstable  | N  |                        |
| - Reacts with H <sub>2</sub> O  | N  |                        |
| - Forms potentially explosive mixture with H <sub>2</sub> O                 | N  |                        |
| - Generates toxic gases with H <sub>2</sub> O                               | N  |                        |
| - Is a cyanide or sulfide between pH 2 and 12.5 which generates toxic gases | N  |                        |
| - Detonates or reacts at standard temperature, pressure                     | N  |                        |
| - Detonates if heated under confinement or with initiating source           | N  |                        |
| - Forbidden or class B explosive  | N  |                        |

NOTES:<sup>@</sup> Fill in as follows:

| <u>Code</u> | <u>Certification</u> |
|-------------|----------------------|
| Y           | yes                  |
| N           | no                   |
| X           | not applicable       |

\* comments or attachments

<sup>#</sup> Optional

\* Supply experimental data

## APPENDIX 1

### QUALITY ASSURANCE GUIDELINES FOR SUBMISSION OF HAZARDOUS WASTE SAMPLE DATA

#### 1. Quality Assurance (QA) Manual

Each laboratory shall have developed a QA manual which is utilized on a routine basis by the laboratory staff. Although a copy of a QA manual need not be submitted with each set of analytical reports, the laboratory should be prepared to submit a copy upon request by the Department. As a minimum, the QA manual should describe the following.

- a. How the laboratory reports are generated, maintained, checked, and filed.
- b. How samples are collected, stored, and logged in and the documentation for sample chain-of-custody.
- c. Bench level quality control procedures and frequencies of application, including the acceptable limits for replicates and percent recoveries and corrective actions. Bench level quality control procedures should include:
  - (i) Method blanks
  - (ii) Field replicates
  - (iii) Laboratory replicates
  - (iv) Spike samples with test or surrogate compound(s)
  - (v) Confirmatory methods
- d. Maintenance and calibration of instruments.
- e. Types and analytical frequency of reference samples from EPA, National Bureau of Standards, etc.

#### 2. Minimum Requirements for Submission of Data

- a. Cite the reference(s) for the extraction and analytical methods used by the laboratory.
- b. If the method is a modification of a standard method, a description of the modification should be submitted for review.
- c. If nonpublished methods are used, provide detailed descriptions of the methods.
- d. Several examples of chromatograms, standard curves, and printouts of GC/MS data should be submitted along with the analytical reports.
- e. Results of replicate and spike analyses should be submitted along with the analytical reports. As a general guideline, 10-15% of samples analyzed should be in replicate and 10-15% of samples should be spiked and percent recoveries calculated.
- f. Results of pertinent reference samples that the laboratory has analyzed during the past 6 months should be submitted along with the analytical reports. Pertinent reference samples are those with a similar matrix and/or analyte to the project samples.

## CALCULATIONS REFERENCES

1. National Institute of Occupational Safety and Health 1979
2. International Technical Information Institute, Japan 1975

## METHODS REFERENCES

1. A.E. Greenberg, J.D. Connors, D. Jenkins (Eds.) Standard Methods for the Examination of Water and Wastewater, 15th Ed American Public Health Association Washington D.C. 1981
2. U.S.E.P.A. Test Methods for Evaluating Solid Wastes Physical/Chemical Methods, SW-846, 2nd Ed, 1982
3. California Department of Health Services Procedures Manual
4. California Administrative Code Title 22, Division 4, Chapter 30
5. C.S. Caruso Chemistry of Cyanide Compounds and Their Behavior in the Aquatic Environment Carnegie Mellon (1975)

State of California  
DEPARTMENT OF FISH AND GAME  
Fish and Wildlife Water Pollution Control Laboratory  
Rancho Cordova, CA 95670

SAMPLE AND BIOASSAY INFORMATION

Static \_\_\_\_\_ Cont. Flow \_\_\_\_\_ Species \_\_\_\_\_ WPCL No. \_\_\_\_\_  
 Screening \_\_\_\_\_ Definitive \_\_\_\_\_ Common Name \_\_\_\_\_ Additional No. \_\_\_\_\_  
 Dilution Water \_\_\_\_\_  $\bar{x}$  Length \_\_\_\_\_ mm  $\bar{x}$  Weight \_\_\_\_\_ g Collectors No. \_\_\_\_\_  
 Hardness \_\_\_\_\_ mg/l Number per Tank \_\_\_\_\_ Del'd By \_\_\_\_\_  
 Alkalinity \_\_\_\_\_ mg/l Supplier \_\_\_\_\_ Date R'cd \_\_\_\_\_  
 Tank Volume \_\_\_\_\_ liters Acclimation Temp. \_\_\_\_\_ °C Project \_\_\_\_\_

|         | INITIAL |    |    |  | 24 Hr |    |    |    | 48 Hr |    |    |    | 72 Hr |    |    |    | 96 Hr |    |    |    |
|---------|---------|----|----|--|-------|----|----|----|-------|----|----|----|-------|----|----|----|-------|----|----|----|
| DATE :  |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
| TIME :  |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         | DO      | °C | pH |  | DO    | °C | pH | #M | DO    | °C | pH | #M | DO    | °C | pH | #M | DO    | °C | pH | #M |
| CONTROL |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |
|         |         |    |    |  |       |    |    |    |       |    |    |    |       |    |    |    |       |    |    |    |

Remarks: \_\_\_\_\_

LC50 \_\_\_\_\_ 95% Confidence Limits \_\_\_\_\_

LC50 Method: Non-linear Interpolation \_\_\_\_\_ Probit \_\_\_\_\_ Moving Average \_\_\_\_\_

Analyst: \_\_\_\_\_ Date: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_